COMPUTER SERVICES MARKETS IN BANKING AND FINANCE

INPUT

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COMPUTER SERVICES MARKETS IN BANKING AND FINANCE

INDUSTRY REPORT #19

JULY 1979

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COMPUTER SERVICES MARKETS IN BANKING AND FINANCE

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1 INTRODUCTION

I INTRODUCTION

- This report is produced by INPUT as part of the Market Analysis Service and analyzes Computer Services Markets in banking and finance.

- This area of research was selected because of high client interest. The banking and finance sector is one of the largest and fastest growing computer services market areas.

- The purpose of this study is to analyze both present and future markets and to provide basic technical background and recommendations for both market entry and expansion.

- Before the research began, interested INPUT clients were contacted for specific areas of interest. The suggested points were included in the questionnaires.

- Interviews were conducted in April through May 1979.

- The research conducted in this report revises and expands the research listed in Appendix E (Related INPUT Reports) and includes 50 additional user and 10 additional vendor interviews covering other banking and finance sub-sectors. Separate interview questionnaires were used for users and for vendors. Copies of the questionnaires are included in Appendix D.

- Definition of terms used in this report appear in Appendix B.

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- The forecasts included in this report include a 6% factor for inflation. The difference between 6% and the annual increase in the Consumer Price Index (CPI) is assumed to be offset by technology.

- Inquiries and comments on the information presented in this report are invited from clients.

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II EXECUTIVE SUMMARY

II EXECUTIVE SUMMARY

A. COMPUTER SERVICES MARKETS IN THE TOTAL BANKING AND FINANCE INDUSTRY SECTOR

1. SCOPE OF THE STUDY

- This report is meant to amplify and support the banking and finance sector analysis as presented in INPUT's "Computer Services Industry 1978 Annual Report." Banking and finance represents by far the largest industry sector market for services, and a more detailed analysis of the industry subsectors was needed by clients.

- The report has been divided into the following subsectors:

  - Commercial banking.
  - Savings and loan.
  - Credit union.
  - Finance company.
  - Security and commodity firm.

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- Mortgage banking company.

- Other.

- The types of firms included in each subsector according to their Standard Industrial Code (SIC) designation are shown in Appendix D.

- The firms within each sector were categorized by size according to a key market characteristic determined by government and industry trade association data. For example, Exhibit II-1 shows that very large commercial banks are those having deposits in excess of $1 billion for commercial departments, or trust assets managed in excess of $800 million for trust departments.

- Each of the subsectors presented in Chapter III, subsector analysis, is meant to stand on its own as an independent report.

- The material presented below, however, applies to the banking and finance sector as a whole.

2. MARKET STRUCTURE

- The banking and finance market is characterized in most subsectors by a concentration of financial assets in very large and large firms.

  - Very large commercial banks, although less than 1% of the total number, hold over 50% of total bank deposits and over 75% of total trust deposits.

  - Very large and large credit unions, only 8% of the total number, hold 85% of industry assets.

  - Very large finance companies, only 3% of total finance companies, hold 90% of both industry assets and credit outstanding.

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EXHIBIT II-1

DETERMINATION OF INSTITUTION SIZE FOR BANKING AND FINANCE SUBSECTORS

INSTITUTION SIZE	COMMERCIAL BANKS		SAVINGS AND LOANS	CREDIT UNIONS	FINANCE COMPANIES	SECURITY AND COMMODITY FIRMS	MORTGAGE BANKING COMPANIES
	COMMERCIAL	TRUST					
	DEPOSITS	ASSETS	ASSETS	ASSETS	CREDIT OUTSTANDING	CAPITALI-ZATION	SERVICING PORTFOLIO
VERY LARGE	>$1B	>$800M	>$1B	>$20M	>$100M	>$50M	>$1.2B
LARGE	500M-1B	400-800M	100M-1B	5-20M	25-100M	10-50M	400M-1.2B
MEDIUM	100-500M	200-400M	25-100M	1-5M	1-25M	2-10M	100-400M
SMALL	<100M	<200M	<25M	<1M	<1M	<2M	<100M

B = BILLIONS
M = MILLIONS

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- Very large security and commodity firms, 5% of total firms, hold 70% of total industry capitalization.

- The concentration of assets is more moderate in two subsectors:

  - Very large and large S&Ls, 20% of the total number, hold 77% of total assets.

  - Very large and large mortgage banking companies, 12% of the total number, hold 66% of total mortgage servicing loan value.

- There is every indication that industry consolidation through acquisition, merger, and liquidation is continuing.

  - The total number of commercial banks is nearly constant (0.8% average annual growth rate or AAGR), but very large banks are growing in number at a 9.5% AAGR.

  - The total number of S&Ls is declining. However, very large S&Ls have an 8% AAGR.

  - The total number of credit unions is also declining, but very large credit unions are experiencing a 13% AAGR.

  - The total number of finance companies has a 2.3% average annual decline rate. However, very large finance companies have a 7% AAGR.

  - Very large security and commodity firms are growing at a 6% AAGR in the face of a decline in the total number of firms.

  - Very large mortgage banking firms, growing in number at a 14% AAGR, are outpacing industry growth of 2% AAGR.

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- Successful marketing does not necessarily mean targeting computer services to very large firms.

  - Small and medium-size banks hold 35% of commercial accounts and are prime candidates of correspondent bank processing services.

  - The middle market for trust services, small banks with trust assets over $10 million to large banks with trust assets up to $800 million, hold 58% of total trust accounts.

  - Very large S&Ls hold only 13% of total savings accounts. Small to large S&Ls are relatively small organizations and turn to computer services vendors for most of their processing services.

  - Small to large credit unions hold nearly 70% of total share accounts and are predominantly computer services oriented.

3. MARKET FORECAST

- The market for computer services in the banking and finance sector is excellent. In 1978, these firms spent over $1.6 billion on computer processing, software products and professional services. With an AAGR exceeding 16% over the next six years, the financial community's total computer services expenditures will rise to nearly $4 billion in 1984.

- Firms spend on the average 30% of total EDP budgets on computer services, and the portion will increase to 36% by 1984.

- As shown in Exhibit II-2, commercial banking is the largest subsector, garnering 62% of total computer services revenues. With an AAGR of 17%, computer services revenues will increase nearly $1.6 billion annually by 1984.

- Buoyed by their new consumer lending powers, credit unions are the largest growth area (18% AAGR).

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EXHIBIT II-2

COMPUTER SERVICES MARKET FORECAST FOR BANKING AND FINANCE BY INDUSTRY SUBSECTOR (1978-1984)

INDUSTRY SUBSECTOR	USER EXPENDITURES			
	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
COMMERCIAL BANKING	$ 1,033	$ 1,210	$ 2,603	17%
SAVINGS AND LOAN	158	182	362	15
CREDIT UNION	77	91	205	18
FINANCE COMPANY	53	59	107	12
SECURITY AND COMMODITY FIRM	225	252	450	12
MORTGAGE BANKING COMPANY	22	25	57	17
OTHER	76	88	185	16
TOTAL	$ 1,644	$ 1,907	$ 3,969	16%

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- Finance companies, faced with a declining consumer market share and pressed by both credit cards and by credit union competition, will have below average growth.

- With excess internal capacity favoring shifting to in-house operations, and with market saturation in selected application areas, security and commodity firms also will have below average overall growth in computer services. However, excellent opportunities for new RCS and FM computer services exist in selected areas.

- Mortgage banking companies, a specialized market area, will have above average growth as smaller companies automate and large companies increase their level of automation.

- Service delivery mode, as shown in Exhibit II-3, now equally divided between RCS and batch, with FM at 15%, will shift to RCS dominance at 57% of total servicing expenditures by 1984.

- There is a significant market for software products, which is expected to reach nearly one-half billion dollars annually by 1984. This is a market related to applications implemented using DBMS and operating with DDP.

4. COMPETITIVE STRUCTURE

- A wide variety of vendors serve the banking and finance sector. Of the estimated 650 vendors, most are small firms specializing in one subsector, and often in a local area or region. As specialists, some vendors have grown to offer services nationwide. Larger RCS vendors have captured substantial market shares in several subsectors. However, no one vendor yet serves all types of firms in the banking and finance sector.

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EXHIBIT II-3

COMPUTER SERVICES MARKET FORECAST FOR
BANKING AND FINANCE BY SERVICE MODE
(1978-1984)

COMPUTER SERVICE		USER EXPENDITURES			
MODE	TYPE	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
REMOTE COMPUTING SERVICES	GENERAL BUSINESS	$ 85	$ 105	$ 266	21%
	INDUSTRY SPECIALTY	439	540	1,501	23
	UTILITY	39	44	82	13
	TOTAL	$ 563	$ 689	$ 1,849	22%
FACILITIES MANAGEMENT	GENERAL BUSINESS	-	-	-	-
	INDUSTRY SPECIALTY	197	233	512	17
	UTILITY	-	-	-	-
	TOTAL	$ 197	$ 233	$ 512	17%
BATCH	GENERAL BUSINESS	121	134	206	9
	INDUSTRY SPECIALTY	432	468	656	9
	UTILITY	7	7	13	11
	TOTAL	$ 560	$ 609	$ 875	8%
TOTAL PROCESSING	GENERAL BUSINESS	206	239	472	15
	INDUSTRY SPECIALTY	1,068	1,241	2,669	16
	UTILITY	46	51	95	13
	TOTAL	$ 1,320	$ 1,531	$ 3,236	16%
SOFTWARE PRODUCTS	SYSTEM	55	62	118	14
	APPLICA-TION	161	187	361	14
	TOTAL	$ 216	$ 249	$ 479	14%
PROFESSIONAL SERVICES		108	127	254	15
TOTAL		$ 1,644	$ 1,907	$ 3,969	16%

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- Commercial banks are providing processing services to many banking and finance firms. However, this area has not been profitable for many commercial banks and many are selling off their accounts to alert RCS vendors. Some banks now offering processing services are:

  - Mellon Bank, which provides correspondent banking services through its data center to some 50 banks on a remote processing basis and to another 100 through batch processing. Mellon's 1978 revenues from this business are estimated to be $11 million.

  - State Street Bank and Trust Company of Boston, with 1978 revenues of $4 million, and Midland National Bank of Milwaukee with 1978 revenues of $2.6 million, are also leading data processors, particularly for S&Ls.

- Automatic Data Processing probably comes closest to providing computer services to firms in all banking and finance subsectors. ADP's total 1978 banking and finance revenues of over $70 million come from:

  - Correspondent bank processing, personal trust, and automated customer services to over 300 banks.

  - Account services to over 250 thrifts (S&Ls and credit unions).

  - Back office and order entry services to over 60 security and commodity firms.

  - Financial management and planning services to major firms in all areas.

- SEI, Inc. is a good example of a specialty firm offering services on a national basis. With 1978 revenues of $18 million, SEI is the leading vendor of personal trust computer services.

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- Tymshare, Inc. became the largest processor of credit cards by acquiring the operations of Western States Bankcard Association in 1977 and had 1978 revenues of $25 million from this industry segment.

- Service Bureau Company (SBC) is the leading RCS vendor to credit unions, deriving over $9 million in 1978 revenues for processing over 5 million accounts. SBC, through its subsidiary Action Data Services, with 1978 revenues of $9 million, is also the leading computer services vendor to finance companies.

- By providing facilities management of the NASDAQ over-the-counter stock quotation system, and by offering quotation services for listed securities and commodities, Bunker Ramo, with 1978 revenues of $46 million, is the largest of three vendors who offer Financial Inquiry Services (FIS) to the security and commodity firm subsector.

- Computer Power, Inc. (CPI), a specialist firm, is the leading vendor of services to mortgage banking companies. With 1978 revenues of $8 million, CPI provides RCS services for over 2 million accounts of very large and large mortgage banking firms.

B. RECOMMENDATIONS

- The market for computer services throughout the banking and finance sector is excellent. Although competition is stiff, the changing structure of financial markets produces new opportunities for both market entry and expansion.

- To operate effectively in banking and finance, vendors should form a specialized group within marketing to concentrate on financial institutions.

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- Contact the automated customer services departments of commercial banks to offer computer services, both on a direct processing and on a private label basis.

- Modularize services offerings and account price services. Offer services on a monthly base price per account with incremental pricing for value added services.

- Commercial banks, more interested in applying critical EDP resources to the consumer marketplace, are good sources of processing accounts for financial institutions.

- Besides the large RCS vendors, most sectors are served by a multiplicity of small vendors, specializing in a specific market segment and frequently on a local or regional basis. Lacking capital to keep pace with changing technology, they become prime candidates for acquisition.

- Give special attention to joint venture or FM arrangements with financial holding companies. Executives in holding companies are more open to business decisions on a cost/effective basis involving specialists then are data processing managers in member institutions.

- Vendors entering a banking and finance market subsector should concentrate on a selected area to establish credibility before expanding their offerings.

  - Vendors servicing more than one application or subsector should expand their services to leverage their expertise and to capitalize on their existing user base.

  - The finance company and the mortgage banking company subsectors are specialized market areas. Entry by new vendors should be approached with caution.

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- Software products vendors have opportunities in most subsectors for developing data base-oriented software products to support minicomputers and distributed data processing.

- Develop and run electronic financial transaction networks for groups of financial institutions such as:

  - ACH for S&Ls and credit unions.

  - Funds transfer networks for banks.

  - Security clearance networks for security firms.

  - Credit card processing networks for banks, S&Ls, and credit unions.

  - ATM networks for S&Ls and credit unions.

- Use user site hardware services (USHS) as a delivery vehicle for RCS services across all subsectors, particularly in the area of financial management and planning services.

- Establish joint ventures with very large or large firms, combining vendor EDP and communications networking expertise with industry knowledge and market outlets to gain broader regional or national coverage.

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III COMPUTER SERVICES MARKETS IN COMMERCIAL BANKS

III COMPUTER SERVICES MARKETS IN COMMERCIAL BANKS

A. SUMMARY AND RECOMMENDATIONS

1. SUMMARY

- There are nearly 16,000 commercial, mutual savings and federal reserve banks in the banking sector, with little growth in number (AAGR 0.8%). Nearly 70% with deposits under $10 million are marginal candidates for computer services.

- Large and very large banks dominate in terms of deposits: 2% in number hold over 60% of total deposits, which have grown to over $1,210 billion in 1978, an AAGR of nearly 10% over eight years.

- Only 4,800 banks have trust departments. Their number is slowly growing (4% AAGR). Nearly 70% with trust assets under $10 million are marginal candidates for computer services.

- Very large banks, 2% in number, manage 75% of total trust assets. However, trust departments with assets between $10 million and $800 million have nearly 60% of total trust accounts, and are the best candidates for trust computer services.

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- Over 220 multibank holding companies with over 2,100 member banks, holding nearly 30% of total bank, deposits are growing in importance as a source of computer services and software products.

- Over 32 billion checks were processed in 1978. Continued growth of 8% per year is not expected to be affected by EFTS or the use of credit cards over the next five years.

- Banks are prime candidates for software products and computer services, spending nearly 8% of total expenses less cost of funds on automation. Total expenditures for computer services will increase $1.6 billion by 1984, an AAGR of 17%.

- Banks are shifting to on-line interactive processing for both commercial and trust department operations. Accelerated shift to computer services vendors offering on-line RCS or user site hardware services (USHS) for personal trust is reflected in an AAGR of 24%, resulting in $150 million in computer services revenues by 1984.

- RCS services for financial management and planning with an AAGR of 22% will continue above average growth, yielding nearly $300 million in computer services revenues by 1984.

- Major changes are occurring in financial market places influenced by money markets, legislation and technology, opening up new opportunities for both computer services and software products.

  - The Federal Reserve will price member bank services.

  - Banks are establishing consumer outlets nationwide.

  - Non bank companies such as Sears and National Steel are entering the consumer financial services marketplace.

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- Interstate branch banking will be tested by 1980.

- Money center banks are heavily involved in the use of EDP for corporate services, particularly cash management. Collins Radio developed and operates Bankwire II an EFT funds transfer network for a consortium of money center banks.

- Banks trust departments are making increased use of RCS services for investment advisory services.

- Very large and large banks are candidates for user site hardware services (USHS) for financial management and planning RCS services. Very large to medium-size bank trust departments are using USHS for personal trust operations.

- Over 300 vendors offer computer services and software products to the banking industry, most specializing in one of the following areas:

  - Commercial banking.

  - Trust.

  - Automated customer services.

  - Credit card processing.

  - Financial management and planning.

- Automatic Data Processing has service offerings to all bank departments, correspondent processing for over 200 banks, personal trust services to 20 banks, automated customer services (particularly payroll) to over 400 banks, and financial management and planning services to over 80 banks. Revenues in 1978 from the banking industry are estimated at over $70 million.

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- SEI, Inc., specializes in trust services to over 250 banks. Revenues in 1978 of $18.5 million represents a 27% market share.

- Tymshare, Inc., is the largest RCS vendor in credit card processing, with 1978 revenues of $25 million for this market segment.

2. RECOMMENDATIONS

- The market for computer services to banks is very competitive, but excellent opportunity still exists for effective market entry and expansion. Changing financial markets give additional opportunity in the near term.

- Vendors considering the banking industry should form a specialized group within marketing to better concentrate on all financial institutions: S&Ls, credit unions, and finance companies, as well as banks.

- Vendors considering entering or expanding correspondent bank processing should acquire commercial processing vendors in regions with a high concentration of small banks.

- Be on the lookout for commercial banks who want to sell off correspondent bank processing accounts.

- Contact commercial banks with the aim of acquiring automated customer services processing, and for offering business services processing on a private-label basis.

- Give special attention to joint ventures with newly formed multi-bank holding companies. Executives in holding companies are more likely to consider FM arrangements with computer services specialists than their counterparts in member banks.

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- Vendors offering correspondent bank processing services should target small banks with deposits between $10 million and $100 million. New opportunities will exist with larger banks as states allow state-wide branch banking.

- Vendors servicing one applicational area should expand their services offerings to leverage their expertise and capitalize on existing users.

- Software products vendors have a major opportunity in developing data base-oriented software products to support DDP in a multi-bank, multi-branch environment.

- Vendors should plan to establish a network to handle ACHs and other financial transactions for groups of banks in less urban areas. Financial networks will be effective for marketing additional services when check truncation is implemented and when interstate branch banking is permitted.

- Services vendors should concentrate on USHS as a primary method of delivery of both trust and financial management and planning services to banks.

- Vendors offering services to commercial banks should integrate financial management and planning systems with DBMS, financial reporting, accounting systems, and offer a total service; from data acquisition through general ledger and financial statement preparation to budgeting, financial forecasting, and strategic planning.

B. MARKET ANALYSIS AND FORECAST

1. MARKET STRUCTURE

- The commercial banking sector comprises:

  - 15,296 commercial banks.

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- 450 mutual saving banks.

- 12 federal reserve banks.

- The number of commercial banks has been stable (AAGR 0.8%) over the last 20 years. Bank branches are growing rapidly (7%) yielding approximately 55,000 banking outlets. Commercial banks require an ever-widening array of software products, electronic networks, and data processing services to support consumer services.

- In terms of numbers, small banks dominate the markeplace. In 1978, over 90% of all banks had deposits under $100 million; 29% had deposits under $10 million (Exhibit III-1).

- Very large banks, less than 1% in number, hold over 50% of total bank deposits and over 75% of total trust deposits.

- Ten states, lead by New York and California, hold over 75% of total bank deposits, over 53% of banking outlets, and nearly 40% of all banks.

- Commercial bank deposits have grown from $233 billion in 1970 to $1,210 billion in 1978, an AAGR 9.6%. Largest growth has been with very large banks with nearly 14% AAGR. The ability of small banks to maintain growth is significant when considering offering computer processing services.

- Trust department managed assets have grown from $307 billion in 1970 to $533 billion in 1978, an AAGR of nearly 7%. Again, small trust departments have been able to maintain growth.

- Demand deposits comprise about 40% of total bank deposits, savings about 24%, and time deposits 36%. The portion of time deposits is increasing.

- There are only 4,800 bank trust departments that execute their trust powers. More are doing so, 1,100 since 1970 for an AAGR of nearly 4%.

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EXHIBIT III-1

MARKET STRUCTURE OF COMMERCIAL BANK
SUBSECTOR BY SIZE IN 1984

BANK SIZE	COMMERCIAL DEPARTMENT					TRUST DEPARTMENT				
	SIZE DEPOSITS (%)	NUMBER	AAGR (%)	DEPOSITS ($B)	AAGR (%)	SIZE ASSETS ($)	NUMBER	AAGR	ASSETS ($B)	AAGR (%)
VERY LARGE	>$1B	108	9.5%	$ 665	13.4%	>$800M	117	7.4%	404	7.0%
LARGE	$500M-1B	113	8.1	89	8.4	$400-800M	69	6.0	34	4.2
MEDIUM	$100-500M	805	7.4	170	6.9	$200-400M	296	5.4	29	4.6
SMALL	<$100M	14,270	0.5	288	4.2	<$200M	4,328	3.4	66	6.0
TOTAL		15,296	0.8%	$1,212	9.6%		4,810	3.7%	$533	6.7%

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- Not all are likely candidates for trust automation. Nearly 70% with assets under $10 million are a marginal market.

- Trust assets managed exceeded $530 billion in 1978, a growth of $220 billion in eight years or an AAGR of nearly 7%.

- The number of trust accounts managed exceeded 1.6 million in 1978, up from 1.0 million in 1970, an AAGR of 6%.

- Whereas very large banks are only 2% in number and manage 75% of total trust assets, they only manage 36% of total trust accounts. The middle market, trust departments with assets between $10 million and $800 million, have 58% of the accounts and are the best candidate for trust computer services.

- Multibank holding companies are increasing in importance. In 1978 there were over 220 holding companies with over 2,100 banks (14% of total banks), having over $350 billion in deposits (29% of total deposits).

- Over 32 billion commercial bank checks were processed in 1978, about half of the checks are "on-us." The other half (transit) pass through an average of two transit operations to clear, giving a total processing volume of over 64 billion.

- The number of checks processed has been growing at an AAGR of nearly 8% for the past eight years. The growth results from demographic and social factors.

- EFTS and credit cards are not expected to reduce check processing growth in the next five years. Growth will be reduced with the onset of check truncation.

- Further information on commercial bank market structure is found in INPUT's report, "Computer Services Markets in Correspondent Banking."

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2. MARKET FORECAST

- Commercial banks are primary candidates for both software products and computer services. In 1978, approximately 25% of total EDP expenditures were for computer services. Total expenditures for computer services will rise from $1 billion in 1978 to over $2.6 billion in 1984, an AAGR of 17% (Exhibit III-2).

- Because of movement to on-line systems and increased use of electronic payment networks, computer services for the commercial banking application will grow nearly $1 billion by 1984, an AAGR of 16%.

- Computer services vendors are offering even the very large banks more viable software for their trust operations than in-house EDP departments. Accelerated shift to computer services vendors both through on-line RCS and USHS will increase computer services revenues for trust operation over $180 milion by 1984, an AAGR of 24%.

- Existing automated customer services including payroll and general accounting, performed either directly or through private label with a 14% AAGR will not grow as rapidly as other services, such as pay-by-phone and corporate financial management and planning.

- Financial management and planning computer services used throughout the banks for corporate work, for strategic planning, and for economic analysis will continue above average growth (22% AAGR) as RCS vendors offer both user site hardware systems and specialized applications.

- In an effort to cut spiraling personnel costs, banks are shifting to on-line operations for both commercial and trust applications.

- Batch processing of the huge volume of consumer transactions is still the dominate (52%) mode of service delivery (Exhibit III-3). The use of mini-computers for satellite operations and the shift to distributed processing will

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EXHIBIT III-2

COMPUTER SERVICES MARKET FORECAST FOR

BANKING AND FINANCE BY APPLICATION

(1978-1984):

COMMERCIAL BANK SUBSECTOR

APPLICATION	USER EXPENDITURES			
	1978 ($M)	1979 ($M)	1984 ($M)	AAGR %
COMMERCIAL BANKING	$ 715	$ 829	$1,703	16%
TRUST	68	84	247	24
AUTOMATED CUSTOMER SERVICES				
- PAYROLL	60	68	131	14
- GENERAL ACCOUNTING	30	34	66	14
- OTHER	20	23	44	20
CREDIT CARD PROCESSING	60	68	131	14
FINANCIAL MANAGEMENT AND PLANNING	80	104	281	22
TOTAL	$1,033	$1,210	$2,603	17%

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EXHIBIT III-3
COMPUTER SERVICES MARKET FORECAST FOR
BANKING AND FINANCE
BY SERVICE MODE (1978-1984):
COMMERCIAL BANK SUBSECTOR

COMPUTER SERVICE		USER EXPENDITURES			
MODE	TYPE	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
REMOTE COMPUTING SERVICES	GENERAL BUSINESS	$ 35	$ 45	$ 134	25%
	INDUSTRY SPECIALTY	181	241	873	30
	UTILITY	15	18	35	16
	TOTAL	$ 231	$ 304	$1,042	29%
FACILITIES MANAGEMENT	GENERAL BUSINESS	-	-	-	-
	INDUSTRY SPECIALTY	156	183	399	17
	UTILITY	-	-	-	-
	TOTAL	$ 156	$ 183	$ 399	17%
BATCH	GENERAL BUSINESS	95	106	160	9
	INDUSTRY SPECIALTY	324	351	486	7
	UTILITY	-	-	-	-
	TOTAL	$ 419	$ 457	$ 646	7
TOTAL PROCESSING	GENERAL BUSINESS	130	151	294	15
	INDUSTRY SPECIALTY	661	775	1,758	18
	UTILITY	15	18	35	16
	TOTAL	$ 806	$ 944	$2,087	17
SOFTWARE PRODUCTS	SYSTEM	40	46	88	15
	APPLICATION	120	141	274	15
	TOTAL	$ 160	$ 187	$ 362	15
PROFESSIONAL SERVICES		67	79	154	15
TOTAL		$1,033	$1,210	$2,603	17

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cause RCS services (remote batch and interactive) to approach 50% of all processing service by 1984.

- Commercial banks use RCS services for general business, for financial management and planning, and for other automated customer services. Batch mode is used for payroll and general accounting, and for credit card processing. Data entry for these applications is shifting to on-line distributed processing.

- Facilities management arrangements continue to be of interest to large banks. Using shared and distributed systems is attractive from the viewpoint of reliability and economics. FM revenues in 1978 of $156 million are 15% of total processing revenues.

- There is a significant market for software products. The shift to on-line systems, use of minis for distributed processing, the need for data base management systems for central information files (CIF), all contribute to the need for new and improved software products. Annual expenditures for software products will increase over $200 million by 1984, an AAGR of 15%.

3. INFLUENCING FACTORS

- The commercial banking system is undergoing rapid change. Market forces are moving ahead of legislative change.

- Banks are leaving the Federal Reserve system. Legislative changes will eventually lower reserve requirements and force the Fed to price services, opening the market to computer services vendor competition.

- Many states have laws which prevent branching, or the formation of multi-bank holding companies. Financial institutions have responded by establishing networks of ATM's, some of which have recently been declared illegal.

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- Current legislation prevents interstate branch banking. Money center banks are circumventing the prohibition by:

  - Issuing credit cards on a national basis.

  - Establishing subsidiary finance company consumer outlets nationwide.

  - Establishing trust departments in other states.

- Bank top management believes that by the end of 1979 limited interstate branch banking will be tested.

- Unabated increase in check volume is forcing bankers to plan alternatives to huge paper moving operations. The evident answer is check truncation coupled with distributed processing. The transition to electronic facsimile transmission will significantly increase processing requirements.

- Continued legislative and regulatory changes in tax and fiduciary law coupled with the changing character of equity and debt securities have greatly altered and increased requirements for on-line real time trust information systems.

- Payment systems are becoming more automated. The national automated clearing house system (ACH) is in place. Use of pay-by-phone systems is rapidly spreading. Eventually electronic networks will merge (interconnect) with national EFT systems.

- Entry of very large banks into the local marketplace will both accelerate formation of multi-bank holding companies and force merger and consolidation among small banks.

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C. USER ANALYSIS

1. APPLICATIONS

- There are five major applications all of which make heavy use of EDP both in-house and for computer services.
  - Commercial banking.
  - Trust.
  - Automated customer services.
  - Credit card processing.
  - Financial management and planning.

- Bank size frequently determines the extent of automation, the mode of service delivery (batch, FM, RCS), and the extent of use of computer services vendors.

- The major functions accomplished within each applicational area are shown in Exhibit III-4. For each function, estimates are provided within each bank size category of:
  - The portion of banks who use in-house versus computer services to accomplish the function.
  - The portion of banks who use on-line interactive mode versus batch.

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EXHIBIT III-4

EDP UTILIZATION FOR COMMERCIAL BANK APPLICATIONS BY SIZE

APPLICATIONS	APPLICATION FUNCTIONS	BANK SIZE											
		VERY LARGE			LARGE			MEDIUM			SMALL		
		IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT
COMMERCIAL	• CORRESPONDENT BANKING												
	DEMAND DEPOSIT ACCOUNTING	XXX	X	X	XXX	X	X	XX	XX	X	X	XXX	
	SAVINGS	XXX	X	XXX	XXX	X	XX	XX	XXX	XX	X	XXX	X
	LOANS	XXX	X	X	XXX	X	X	XX	XX	X	X	XXX	–
	ADMINISTRATION	XXX	X	XXX	XXX	X	XX	X	XXX	XX	–	XXX	X
	• CORPORATE	XXX	X	XX	XXX	X	XX	X	XX	X	–	–	–
	• FUNDS TRANSFER	XXX	X	XXX	XXX	X	XXX	X	X	XX	–	–	–
TRUST	• PERSONAL TRUST	XXX	X	X	XX	XX	XX	XX	XXX	XX	X	XXX	XX
	• CORPORATE TRUST	XX	XX	X	X	XXX	X	–	–	–	–	–	–
	• INVESTMENT ANALYSIS	XXX	X	XXX	XXX	XX	XXX	X	XX	XXX	X	XXX	XX
AUTOMATED CUSTOMER SERVICES	• PAYROLL	X	XXX	X	X	XXX	X	X	XXX	X	X	XXX	X
	• BUSINESS SERVICES	X	XX	X	X	XX	X	X	XX	X	X	X	X
CREDIT CARD PROCESSING	• DEBIT CARDS	XX	XX	X	XX	XX	X	X	X	X	–	–	–
	• CREDIT CARDS	XX	XX	X	XX	XX	X	XX	XX	X	X	X	X
FINANCIAL MANAGEMENT AND PLANNING	• FINANCIAL PLANNING	X	XXX	XXX	X	XX	XXX	X	X	XX	X	X	X
	• FINANCIAL REPORTING	X	XXX	XXX	X	XX	XXX	XX	XX	XX	X	X	X
	• ECONOMIC FORECASTING	X	XXX	XXX	X	XX	XXX	–	–	–	–	–	–

– NOT USED
X LESS THAN 25%
XX BETWEEN 25 AND 75%
XXX OVER 75%

IH - IN-HOUSE
CS - COMPUTER SERVICES
INT - INTERACTIVE MODE

- For example, small banks are not involved in funds transfer. Less than 50% of medium-size banks are so involved; and when they are, they are about equally divided between using in-house and computer services. The major portion of large and very large banks accomplish funds tranfer in-house and in the on-line interactive mode.

- In commercial banking, the correspondent banking function is the most complex. Transaction volumes are over 250 million items per day. Although demand deposits are only 40% of total bank deposits, over 60% of total commercial banking computer services expenditures are used for this function.

- Federal reserve banks are under pressure to price their check clearance services to member banks. They will become targets for FM arrangements.

- Large and very large money center banks are heavily involved in the use of EDP for corporate services, particularly cash management, both on a national and multi-national basis.

- Bank trust departments have been shifting their role as custodians and conservators to investment and financial advisors, particularly in the area of employee pension plans. Bank trust officers have turned in ever-increasing numbers to computer services vendors for on-line interactive personal trust systems, for securities clearance, and for private label corporate trust services.

- Bank trust departments are making increased use of RCS services for investment analysis to demonstrate investment performance. Very large money center banks are using RCS vendors to do performance analysis of all fund managers under Master Trust arrangements.

- Automated customer services is an excellent area for computer services vendor involvement. Services can be offered both on a private label or direct basis. Banks offer such services as professional billing, inventory analysis, and

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accounts receivable, backed by processing arrangements with computer services vendors. Automated customer services depend heavily on the use of batch processing.

- Banks form associations to process, bill and reconcile credit card accounts for member banks. Some associations use banks to do credit card processing, but can successfully be approached for FM arrangements.

- Banks are major users of RCS services for financial management and planning (FMPS). They use FMPS for both internal and for corporate services. Banks use a wide variety of economic and financial data bases for economic and industrial forecasting. Virtually every department in very large and large size banks use RCS services for financial reporting, budgeting, and department planning.

2. USE OF COMPUTER SERVICES

- Banks are highly automated, spending nearly 8% of all expenditures less cost of funds on computer automation. In 1978, all but 35% of small banks were automated. This portion will drop 20% (virtually all under $10 million deposits) by 1984.

- For the commercial banking application, the smaller the bank size the more likely it is to use outside services. Exhibits III-5 shows the relative utilization of in-house and outside EDP by bank size.

- Very large and large banks primarily use in-house systems. In fact they are a significant provider of commercial banking services to their correspondents. Large banks are candidates for FM arrangements.

- Some (20%) medium-size banks use computer services primarily by computer processing vendors, but also under FM arrangements.

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EXHIBIT III-5

DISTRIBUTION OF EDP UTILIZATION FOR

COMMERCIAL BANKS BY SIZE (1978-1984)

BANK SIZE	IN-HOUSE (%)		COMPUTER SERVICES (%)		NOT AUTO-MATED (%)	
	1978	1984	1978	1984	1978	1984
VERY LARGE	95%	96%	5%	4%	0%	0%
LARGE	92	94	8	6	0	0
MEDIUM	79	72	20	28	1	0
SMALL	9	12	56	68	35	20

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- The market for commercial banking computer processing services (primarily correspondent banking) is with small banks having deposits between $10 million and $100 million.

- All trust departments having trust assets greater than $10 million are candidates for computer services vendors, whether through on-line RCS services or by on-site minicomputer systems. In 1978, bank trust departments spent over 30% of total EDP expenditures for personal trust computer services.

- Except for payroll, banks currently accomplish the major portion of automated computer services (ACS) in-house. The Federal Reserve functional analysis indicates that for most banks ACS is not a profit contributor. The situation is expected to induce more banks to make arrangements with computer services vendors to handle computer processing.

- Very large and large banks are prime candidates for user site hardware systems (USHS). RCS services for financial management and planning and for department applicational use frequently grows to the point where shifting to an in-house timesharing system becomes more economic. USHS gives the bank both the economics of internal use, and RCS network use for data base access, and for financial information transfer.

- Key buyers of computer services vary both by application area and by bank size.

- Vice presidents of data processing at very large and large banks buy commercial applications software products.

- Vice presidents and cashiers at small to medium-size banks most frequently decide on computer services for correspondent banking functions. At smaller banks the decision will even involve the bank president.

- Look for the financial vice president of multi-bank holding companies when offering commercial application processing services on a FM or RCS basis.

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- Selection of a personal trust system rests with the senior trust officer. At large and very large banks, initial contact is with trust operations officers.

- Vice presidents of customer services are the people to see in offering either new private label or direct processing services.

- MIS directors, planning officers, corporate services officers, and time sharing supervisors are all people to see for selling FMPS and other RCS business services to all but small banks.

3. EXISTING PRODUCTS

- Banks are under continual pressure to revise and extend the commercial banking application to meet changing market conditions.

- Banks are shifting to on-line services, extending coverage areas through sattelite processing centers, and implementing distributed processing for consumer transaction services.

- Only 29% of respondents using correspondent banking services were pleased with the level of vendor service. Some 14% felt current services lacked meeting essential requirements.

- Over 60% of respondents indicated that they would be changing their method of accomplishing correspondent banking functions over the next five years. Respondents highlight plans to shift to on-line systems and to increase use of electronic payment systems.

- Trust officers were not satisfied with software products for in-house personal trust systems. Software products have not kept pace with legislative and regulatory change, and are not able to operate in an on-line manner using data base management systems.

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- Respondents generally felt that vendors' FMPS products and services satisfied their current and anticipated future requirements. They feel that RCS costs are higher than required, and are looking at USHS minis to significantly reduce RCS transaction costs thereby offsetting ever increasing usage.

4. NEEDED PRODUCTS

- The shift to on-line consumer transacting satellite and distributed computing systems will require a new array of software products for commercial banking.

- Centralized information files (CIF) implemented by data base management systems are high on respondents lists of future needs. Other applications needing effective software products are commercial loan and real estate management.

- Executives are looking for distributed processing networks for the commercial application. They want the branches to be able to continue consumer operation when the central host is not on-line.

- Bank executives are looking for more effective methods of handling check processing. They want systems that eventually will truncate the check at the point of system entry, transmitting the information electronically and returning a facsimile or descriptive statement account to the consumer at period end.

- Trust department executives are looking for on-line trust information systems developed by data base management systems. They want automated cash management, security movement and control, employee participant benefits accounting and tie in to depository trust operations.

- Trust executive of very large trust departments want comprehensive Master Trust Accounting systems, which provide automatic cash management, individual fund performance analysis, and investment manager cross performance evaluation.

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- Banking executives plan to offer additional automated customer services such as pay-by-phone, automatic transfer accounts, and interest on checking accounts as they pursue the consumer market place.

- Sophisticated cash management systems will be tied to electronic funds transfer networks to provide corporate treasurers greater opportunity to manage near-term cash flows.

- Very large money center banks are flooding the consumer market place with credit cards, extending credit networks nationwide.

- Executives are looking for vendors to integrate FMPS software with DBMS and financial reporting and accounting systems, thus providing the capability of handling financial reporting, accounting, budgeting performance and planning in an integrated manner.

5. INDUSTRY ISSUES

a. Government

- The financial marketplace is rapidly outpacing obsolete and restrictive state and federal laws governing the banking system.

- In 1978, nearly 100 commercial banks left the Federal Reserve system. The Fed is trying to counter this move by reducing reserve requirements and by pricing its services such as check clearance.

- Very large banks are establishing retail outlets in other states in the form of finance companies and trust companies in preparation for branch banking at the national level.

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- A recent U.S. Court of Appeals decision outlawing credit union share drafts, bank automatic transfer services and S&L ATMs clearly puts the burden on Congress to revise financial institutions laws and regulations. The end result will be to gradually open financial markets to increased competition.

b. Distributed Data Processing (DDP)

- Bank executives are keenly interested in distributed data processing (DDP). They want to do something to stem the ever-increasing size of central data processing facilities.

- Bank executives want DDP because they are concerned about disruption of the central host due to:

  - Labor unrest.

  - Terrorism.

  - Power outages.

- Using DDP, banks are offloading their mainframes by:

  - On-line data entry systems coupled to minicomputer front ends to mainframes.

  - Accomplishing daily consumer transactions using minicomputers.

  - Establishing satellite data processing centers.

- Bank executives perceive that banks will gain greater access to EFTS systems through use of micro/mini systems at branch and regional levels.

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c. Facilities Management (FM)

- Bank executives have recognized that systems, operations, and software talent are in short supply. They have elected to shift to FM arrangements to take advantage of specialized technical expertise and the economy of scale afforded by large-scale central host mainframes.

- Electronic technology has reached the point where data communication costs become significant when deciding between remote hosts or on-site hardware systems.

- FM vendors will have to provide additional value added services or change their methods of FM operation to retain and expand their FM market share.

d. User Site Hardware Services (USHS)

- Bank executives are interested in USHS for FMPS timesharing from remote computing services vendors. They perceive USHS as more economic than remote computing charges plus communiction costs. By using USHS, banks can access the RCS network for data bases or for increased computing power.

- Trust departments are interested in USHS for personal trust systems within the trust department. The trust department can access the vendors RCS networks for data bases, for security pricing, and for security custody and clearance.

- Banks use USHS minicomputers for Bankwire II, and SWIFT funds transfer networks.

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D. COMPETITIVE ENVIRONMENT

1. COMPETITIVE STRUCTURE

- Over 200 bank and commercial computer services vendors offer commercial application processing services. Most operate locally (within a 200-mile radius), some regionally (1,500-mile radius), and a few on a national basis. The total number of vendors will decrease as large vendors extend area coverage through satellite systems and USHS minicomputers.

- Four types of vendors compete for commercial banking application services.

  - Banks offering correspondent bank processing services.

  - Computer processing services vendors.

  - Software and professional services vendors.

- There are a large number of specialized vendors. No one vendor dominates the marketplace. Commercial banks as a group lead in providing correspondent bank processing services.

- Computer services firms engaged in commercial bank correspondent processing currently have only 9% of the total bank market. No vendor currently has revenues exceeding $10 million for this market segment (Exhibit III-6). Opportunities exist for expanding market coverage by acquiring processing done by commercial banks, and by capturing in-house processing within multi-bank holding companies.

- Mellon Bank is one of the leading bank providers of correspondent bank processing services. The data center serves over 50 banks with their remote and branch operation service and another 100 local banks on a batch basis. Revenues in 1978 are estimated at $11 million.

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- ADP, Inc., has recently acquired bank processing services from very large banks in Texas and California. ADP provides processing services to over 200 banks, deriving over $7 million in 1978 revenues.

- Colorado Computer Center is an examples of one of the numerous privately held firms that provide correspondent bank data services at the local level. They provide services to some 60-80 banks in the greater Denver area, deriving over $3 million in annual revenues.

- Three vendors, Systematics, National Sharedata and Electronic Systems (EDS), are the leading FM vendors to large and medium-size banks, serving nearly 100 banks, deriving nearly $80 million in revenues, and controlling 67% of the FM market segment.

- SEI, Inc., with 1978 revenues of $18 million and Bradford National Corporation with 1978 revenues of $5 million have 34% of the market for personal trust computer services. Comshare is making a strong bid to increase its market share. The share (9%) held by vendors supplying on-site mini systems is increasing.

- Bradford National Corporation also specializes in corporate trust services to banks, both on a private label and direct processing basis.

- Automatic Data Processing is the leading vendor of payroll and other business services to banks, both on a private label and direct processing basis. Revenues in 1978 for business services to banks exceeded $30 million.

- In acquiring the credit card operations of Western States Bankcard Association (WSBA) in 1977, Tymshare, Inc. became the largest ($25 million) processing vendor in this market segment. The other large vendor is First Data Resources, Inc.

- GEIS, ADP, DRI, and IDC are the leading vendors of RCS Financial Management and Planning Services to banks. GEIS and ADP are strong in

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financial planning, whereas DRI and IDC specialize in data base-related services for economic analysis.

- The Banking System Division of UCC is a leading software products vendor for the commercial banking application. UCC specializes in correspondent banking packages. Revenues in 1978 are estimated at $5 million.

- Florida Software Systems, Inc., is the only services vendor providing personal trust software packages for medium and large size trust departments using in-house IBM, Burroughs, NCR and Honeywell hosts. Revenues in 1978 for trust software packages are nearly $2 million.

- Foresight Systems, Inc., a subsidiary of United Computing Systems (UCS), is the leading vendor of software products for financial management and planning. Revenues in 1978 are estimated at over $4 million.

2. VENDOR PERCEPTIONS

- Both computer service and software products vendors single out commercial banks as primary targets for offering a wide variety of systems and services.

- Forward looking vendors have recognized the potential of innovative automation to blunt the banks' personnel cost spiral.

- Most vendors perceive that their current products and services will not satisfy most future bank requirements and are involved in major development programs for on-line, distributed, data base-oriented products and services.

- Vendors' projected growth rates in the banking subsector generally exceed by 50% those reported by user respondents, indicating vendor's plan not only to participate in market growth, but to capture additional market share.

- Software products vendors are turning to minicomputers and are planning to offer turnkey systems for both trust and FMPS applications.

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- RCS vendors pressed by rapidly declining computational costs relative to communication costs are turning to USHS systems for FMPS and trust applications.

- RCS vendors who perceive that banks are headed toward the consumer marketplace are applying their communications expertise in developing electronic networks which include shared ATM and switching capability.

- RCS vendors offering personal trust services perceive the need to use distributed processing to bring data base access and report preparation closer to the user, reducing both cost and report delivery time.

- Some RCS vendors see credit authorization and credit cards as leading toward bank branching on a national level, and are planning to provide EFTS networks to support remote transactions.

- RCS vendors have determined that by going applications specific, they can add value to timesharing services they offer numerous bank departments.

E. PRODUCT AND MARKETING ISSUES

1. PRODUCT STRATEGIES

- Offering correspondent bank processing services requires:

  - Interface with wide variety of teller, administrative, data entry and inquiry terminals on an interactive basis.

  - On-line data entry and inquiry using 1200-2400 BPS lines.

  - One to two second CRT response 90% of the time.

  - On-line processing of savings and loans transactions.

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- ATMs on-line.

- On-site or satellite data captor (within 200 mile radius) of MICR items using 4800-9600 BPS lines.

- ACH interface capability.

- "Memo post" of cash debits on-line.

- Ability to handle proof and transit operations.

- Ability to handle processing within four-hour window.

- Reliable courier service.

- Offering personal trust services requires:

  - Software that automates over 90% of the transactions.

  - On-line data base management system operating on an interactive basis, using 1200-2400 BPS lines.

  - Three to five second terminal response 80% of the time.

  - Interface with depositary trust company for custody and clearance.

  - 1920 character CRTS and 120 character wide multi hard copy terminals.

  - Highly modularized system with basic system price plus enhancements, all priced on a per account basis.

  - High-speed printers (600-900 LPM).

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- Microfiche service.

- Forms design and printing service.

- Customer oriented statements.

- Offering financial management and planning services requires:

  - Ability to operate software system on USHS.

  - Integration of FMPS with DBMS and with financial reporting and accounting systems.

  - Support of both CRT and multi hard copy terminals.

  - On-line interactive mode of system operation.

  - "Ease of use" for business, financial and economic data bases.

  - A wide variety of standard business planning functions. Examples are:

    . Discounted cash flow.

    . Depreciation methods.

    . Return on investment.

    . Compound interest.

    . Lease/buy analysis.

    . Present value.

  - Consolidation.

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- A comprehensive set of statistical routines. Examples are:
  - . Linear regression.
  - . Means and variances.
  - . Auto correlation.
- Sensitivity analysis.
  - . Multiple regression.
  - . Moving averages.
  - . Monte Carlo simulation.
  - . Risk analysis.
  - - Ability to do "what if" analysis.
  - - Ability to do goal seeking.
  - - Ability to solve simultaneous equations.
  - - Capability to do time series analysis.

- Financial management and planning systems should have the ability to easily shift between financial reporting and control to financial planning operations.
- Economic and financial data bases should be offered together with FMPS in the banking subsector.

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2. MARKETING STRATEGIES

- Sales and marketing to banks should be carried out by a separate financial group in marketing. The group would handle S&Ls and credit unions as well as commercial banks.

- For marketing to the commercial side of a bank specific knowledge is needed in the following areas:

  - In-depth knowledge of bank consumer operations.

  - Banking teller, administrative, data entry and consumer inquiry terminals.

  - MICR entry and processing equipment.

  - Electronic funds transfer systems.

  - Data base management/CIF systems.

  - Data security methods.

- For marketing to trust departments, salesmen must:

  - Deal with trust officers using their own terms.

  - Have high degree of technical expertise in all aspects of trust systems.

- State and Federal laws and regulations for both the commercial and trust departments are in a constant state of change. Marketing must keep abreast of the implications of changes on the way banks are serviced.

- Marketing FMPS products and services requires offering professional services by:

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- MBAs well versed in budgeting and strategic planning to assist users in defining and building application packages.

- Ph.D. consulting business economists to deal with bank economists in economic analysis and forecasting.

- Services should be uniformly priced on a "per account" basis for commercial banking, trust and automated customer services. The pricing structure should include a monthly price per account for basic service, with incremental pricing for value added services to the account.

- Vendors should target marketing computer processing services to multi-bank holding companies. Holding company management is usually receptive to cost/effective arrangements with organizations possessing specific expertise.

- Marketing should look to acquisitions of computer services vendors for correspondent bank and trust processing as an effective way of market entry or for expansion on a national basis.

- Combining vendor-developed financial transaction networks (corporate and consumer) with bank market outlets through joint ventures with groups of banks is another effective approach.

- Software products vendors have a major opportunity in developing new software to support DDP in a multi-bank, multi-branch operating environment.

- Computer services vendors must offer a total system to bank trust officers. The system should include the USHS mini or intelligent terminal hardware, trust software, communications, technical support and maintenance.

- Marketing should be concentrated in states or regions where legislative changes are opening up financial markets. Examples are statewide branching in Florida and multi-bank holding companies in Illinois.

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EXHIBIT III-6

COMPUTER SERVICES VENDORS' SHARE OF THE COMMERCIAL BANK MARKET IN 1978

APPLICATION / VENDOR TYPE	NUMBER OF VENDORS	NUMBER OF BANKS SERVICED	REVENUES ($ MILLIONS)	MARKET SHARE (%)
• COMMERCIAL BANKING				
COMMERCIAL BANKS	160	6,260	$386	37%
COMPUTER PROCESSING VENDORS	45	1,570	92	9
FM VENDORS	15	150	120	12
• TRUST				
COMPUTER PROCESSING VENDORS	10	350	29	3
FM VENDORS	6	40	6	1
• AUTOMATED CUSTOMER SERVICES				
COMPUTER PROCESSING VENDORS	20	600	80	8
FM VENDORS	15	20	10	1
• CREDIT CARD PROCESSING				
COMPUTER PROCESSING VENDORS	20	310	33	3
FM VENDORS	8	200	20	2
• FINANCIAL MANAGEMENT AND PLANNING				
COMPUTER PROCESSING VENDORS	30	300	30	3
• SOFTWARE PRODUCTS VENDORS	100	–	160	15
• PROFESSIONAL SERVICES VENDORS	–	–	67	6
TOTALS	–	–	$1,033	100%

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IV COMPUTER SERVICES MARKETS IN SAVINGS AND LOAN ASSOCIATIONS

IV COMPUTER SERVICES MARKETS IN SAVINGS AND LOAN ASSOCIATIONS

A. SUMMARY AND RECOMMENDATIONS

1. SUMMARY

- The S&L industry is highly automated. Over 3,300 S&Ls are major users of on-line interactive computer services from over 200 vendors.

- The market structure of both the S&Ls themselves and S&L servicing vendors is in a state of change, influenced by financial markets, government legislation, competition, and electronic technology.

- S&L's spend about one-third of their total EDP budgets on computer services. In 1978, this amounted to $156 million. Expenditure for computer services will grow at an AAGR of 15%, reaching $362 million by 1984.

- S&Ls use EDP in five areas:

  - Savings.

  - Loans.

  - Administration.

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- Financial management.

- Consumer services.

- Currently, the savings and loan areas account for 80% of total computer services expenditures. This will change by 1984.

  - Consumer services, which includes NOW accounts, pay-by-phone, credit cards, and ATMS, will have a 33% AAGR, rising to nearly 10% of S&L computer services market.

  - RCS services, already the main delivery mode, will increase to over 85% of total processing services by 1984.

- S&L executives are interested in distributed data processing to maintain branch operations when the host or net is down and to gain greater access to EFTS networks.

- S&L executives showed little interest in FM arrangements.

- S&L executives were open to user site hardware systems, but had not as yet considered their applicability to S&L operations.

- The number of S&L computer services vendors is declining, primarily through acquisition and merger.

- The four Federal Home Loan Banks are under court order to get out of the S&L processing business.

- Some commercial banks are selling off their S&L processing accounts to devote critical resources to new consumer services.

- Commercial RCS vendors, with 1978 revenues of $60 million, control 42% of the market.

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- ADP is the leading RCS vendor with 1978 S&L revenues of $6 million, and is actively acquiring S&L processing companies.

- Remote Computing Corporation (RCC) specializes in RCS services to S&Ls. RCC offers Savings and Loan Planning (SLP) for financial mangement and planning, and AMMINET for secondary mortgage market trading.

2. RECOMMENDATIONS

- The existing market is near satuation. New entrants should pursue a merger, joint-venture, or acquisition strategy.

- Attention should be focused on small commercial vendors and on S&L joint-ventures. Some of these organizations are amenable to takeover because they lack capital to keep pace with new market changes.

- Canvas commercial banks to see if they will sell off S&L processing.

- Establish a special group within marketing for handling financial institutions: banks, finance companies, credit unions as well as S&Ls.

  - Concentrate on finance as a speciality.

  - Concentrate marketing on large and medium-size S&Ls in the 10 states which contain the major portion of the market.

- Besides account processing, offer a full line of services such as financial management and planning (FMPS), cash management and portfolio performance and evaluation.

- Develop EFTS networks, establish ACH's for S&Ls, and be prepared for national S&L branching.

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- Be prepared to offer NOW account or other third party payments processing as state/federal regulations permit its use.

B. MARKET ANALYSIS AND FORECAST

1. MARKET STRUCTURE

- There are 4770 S&Ls in the U.S. As shown in Exhibit IV-1, only the large and very large ones are growing in number, indicating that consolidation and merger is occuring.

- While large and very large S&Ls represent only 20% of total S&Ls, they have 77% of total assets and 66% of total accounts.

- Half of the S&L asset base is concentrated in just six states: California (18%), Illinois (7%), Florida (7%), Ohio (7%), New York (6%), and Texas (5%). Nine out of the 10 largest S&Ls are located in California.

- Between 1965 and 1977, industry assets have grown from $130 billion to $459 billion, an 11% AAGR. This growth rate was continued for 1978, giving total industry assets of $509 billion.

- Total accounts (passbook, certificates) at S&Ls have grown from 40 million in 1965 to 77 million in 1977, an AAGR of 6%. Continuing the growth, 1978 yields total industry accounts of 82 million.

- State chartered associations constitute about 60% of total S&Ls. Although federal S&Ls number only 40% of total S&Ls they hold the major portion (59%) of the assets.

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EXHIBIT IV-1

MARKET STRUCTURE OF SAVINGS AND LOAN SUBSECTOR

BY SIZE IN 1978

SAVINGS AND LOAN SIZE	SIZE ASSETS ($)	NUMBER	AAGR %	ASSETS ($B)	AAGR %	ACCOUNTS (M)	AAGR %
VERY LARGE	> $1B	35	8%	$ 99	12%	11	8%
LARGE	100M-1B	947	18	292	16	43	10
MEDIUM	25M-100M	1,764	-	99	5	21	3
SMALL	<25M	2,024	-	19	-	7	-
TOTAL		4,770	-	$509	11%	82	6%

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- Most (85%) S&Ls are mutual organizations. However, stock companies hold 22% of total S&L assets. California, with over half of all stock company assets, has the most S&Ls with stock charters.

- The composition of savings accounts have been changing. In 1967 nearly 78% of all accounts were passbook and 22%, certificate. By 1977 only 40% were passbook and 60%, certificate. Increased certificate accounts imply lower consumer transaction rates, relaxing on-line processing and terminal response requirements.

- Additional information on savings and loan market structure is found in INPUT's report, "Computer Services in the Savings and Loan Industry."

2. MARKET FORECAST

- S&Ls spend about one-third of total EDP budgets on computer services. Expenditures for computer services will grow from $156 million in 1978 to $362 million by 1984, an AAGR of 15% (Exhibit IV-2).

- Compared to commercial banks S&Ls are small organizations and must depend on computer services vendors to provide a major portion of their RCS requirements. The ability to offer NOW (checking) accounts and extended consumer credit will increase S&L dependence on computer services vendors.

- Savings and Loan functions together utilize 80% of total 1978 expenditures. The loan function growth rate is greater than that for the savings function because of additional RCS services for loan document preparation, automated appraisal, and secondary mortgage market operation.

- The consumer services function is the greatest growth area. As S&Ls compete for consumer dollars, computer services expenditures for such services as NOW accounting, pay-by-phone, automatic transfer, and credit cards will rise from $6 million in 1978 to $33 million in 1984, and AAGR of 33%.

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EXHIBIT IV-2
COMPUTER SERVICES MARKET FORECAST FOR
BANKING AND FINANCE BY APPLICATION (1978-1984):
SAVINGS AND LOAN SUBSECTOR

APPLICATION	USER EXPENDITURES			
	1978 ($M)	1979 ($M)	1984 ($M)	AAGR %
• SAVINGS - PASSBOOK, CERTIFICATE IRA, KEOGH, ACCOUNT MANAGEMENT	$ 76	$ 86	$156	13%
• LOAN - CONSUMER, CONSTRUCTION, ADMINISTRATION, REAL ESTATE MANAGEMENT, MORTGAGE MARKETS	51	59	116	15
• ADMINISTRATION - HUMAN RESOURCES, PAYROLL, PUBLIC FUNDS, AUTOMATIC DEPOSITS	5	6	13	17
• FINANCIAL MANAGEMENT - FINANCIAL PLANNING REPORTING, ASSET AND LIABILITY MANAGEMENT	20	23	44	14
• CONSUMER SERVICES - POS, ATM, NOW ACCOUNTS, PAY BY PHONE, CREDIT CARDS	6	8	33	33
TOTAL	$158	$182	$362	15%

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- S&Ls use primarily on-line interactive RCS services. Over 80% of total 1978 S&L computer services expenditures was for this service mode. By 1984 the RCS portion will rise to nearly 85% (Exhibit IV-3).

- S&Ls accomplish general business functions primarily through RCS services. The primary growth areas in data base-related RCS services are secondary mortgage market operations, loan appraisal, and financial management and planning.

- The use of batch processing is on the decline. S&Ls are implementing central information file (CIF) systems, which allow file changes to be made on-line. The general ledger is frequently prepared as a byproduct of daily branch interactive operation.

- S&Ls have made limited use of Facilities Management arrangements. The wide variety of available computer services vendors gives S&Ls little incentive to go the FM route.

- Almost all very large S&Ls have in-house systems. Just over 40% of large S&Ls had in-house systems in 1978. Together they account for over 80% of total expenditures for software products and professional services.

- Large and medium-size S&Ls account for 90% of total S&L expenditures for processing services in 1978. They will remain the prime target for RCS vendors through 1984.

- About 20% of small S&Ls still use batch processing for S&L operations. The use of batch processing services will decline as more small S&Ls go on-line. Batch services will continue for general business applications such as general ledger and financial administration.

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EXHIBIT IV-3
COMPUTER SERVICES MARKET FORECAST FOR
BANKING AND FINANCE BY SERVICE MODE (1978-1984):
SAVINGS AND LOAN SUBSECTOR

COMPUTER SERVICE		USER EXPENDITURES			
MODE	TYPE	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
REMOTE COMPUTING SERVICES	GENERAL BUSINESS	$ 20	$ 24	$ 60	20%
	INDUSTRY SPECIALTY	94	109	226	16
	UTILITY	12	13	21	10
	TOTAL	$126	$146	$307	16%
FACILITIES MANAGEMENT	GENERAL BUSINESS	-	-	-	-
	INDUSTRY SPECIALTY	4	5	7	10
	UTILITY	-	-	-	-
	TOTAL	$ 4	$ 5	$ 7	10%
BATCH	GENERAL BUSINESS	2	2	3	8
	INDUSTRY SPECIALTY	10	11	14	6
	UTILITY	-	-	-	-
	TOTAL	$ 12	$ 13	$ 17	6%
TOTAL PROCESSING	GENERAL BUSINESS	22	26	63	19
	INDUSTRY SPECIALTY	108	125	247	15
	UTILITY	12	13	21	10
	TOTAL	$142	$164	$331	15%
SOFTWARE PRODUCTS	SYSTEM	4	4	7	10
	APPLICATION	8	9	14	10
	TOTAL	$ 12	$ 13	$ 21	10%
PROFESSIONAL SERVICES		4	5	10	16%
TOTAL		$158	$182	$362	15%

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3. INFLUENCING FACTORS

- S&Ls have been evolving from a warehouse for savings and a provider of mortgages to a provider of an increasingly wider range of consumer services. This trend has accelerated under pressures from banks and credit unions and from new opportunities created by advances in electronic technology.

- Major structural changes have been occurring in money markets for residential financing.

  - S&Ls have become the major source of residential credit.

  - The secondary mortgage market has become a significant source of funds, helping both the value and flexibility of S&L asset portfolios.

  - Residential mortgages have lost their premium over other long-term securities such as AAA bonds.

- The stability of money markets has been seriously eroded, leading to greater uncertainty. This has resulted in rapid shifts of savings flows.

- Federal legislative and regulatory changes will eventually eliminate most distinction between commercial banks and S&Ls.

- Having pioneered the use of on-line systems for consumer operations S&Ls are turning to electronic funds transfer (EFT) systems to blunt the competitive edge in consumer outlets enjoyed by banks.

  - S&Ls will join ACHs.

  - S&Ls will issue credit cards.

  - S&Ls will use EFTS nets with shared ATMS and POS terminals.

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- S&Ls will be forced into offering NOW accounts by upward pressures from credit unions offering share drafts.

C. USER ANALYSIS

1. APPLICATIONS

- There are five major applications for which a S&L may use EDP, either in-house or through computer services.
  - Savings.
  - Loans.
  - Administration.
  - Financial management.
  - Consumer services.
- S&L size frequently determined the extent of EDP utilization, the mode of delivery (batch, remote batch, RCS), and the extent of computer services vendors are used.
- The major functions accomplished within each of the five applicational areas are shown in Exhibit IV-4. For each function, estimates are provided within each size category of:
  - The portion of S&Ls that use in-house computer services to accomplish the function.

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EXHIBIT IV-4

EDP UTILIZATION FOR SAVINGS AND LOAN APPLICATIONS BY SIZE

APPLICATION	APPLICATION FUNCTIONS	SAVINGS AND LOAN SIZE											
		VERY LARGE			LARGE			MEDIUM			SMALL		
		IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT
SAVINGS	• PASSBOOK SAVINGS	XXX	X	XXX	XXX	X	XXX	XX	XX	XXX	X	XXX	XXX
	• SAVINGS CERTIFICATES	XXX	X	XXX	XXX	X	XXX	XX	XX	XXX	X	XXX	XXX
	• MARKET RATE CERTIFICATES	XXX	–	XXX	XX	X	XXX	–	–	–	–	–	–
	• IRA + KEOGH	XXX	X	XXX	XXX	X	XXX	XX	XX	XX	X	XX	XX
	• SAVINGS ADMINISTRATION	XXX	X	XXX	XXX	X	XXX	XX	XX	XX	X	XX	XX
LOANS	• MORTGAGE LOANS	XXX	X	XXX	XXX	X	XXX	XX	XX	XX	X	XX	XX
	• APPRAISALS	–	XX	XXX	–	X	XXX	–	–	–	–	–	–
	• CONSTRUCTION LOANS	XXX	X	XXX	XXX	X	XXX	XX	XX	XXX	–	–	–
	• LOAN ADMINISTRATION	XXX	X	XXX	XX	XX	XXX	X	X	XX	–	X	XX
	• REAL ESTATE MANAGEMENT	XXX	X	XXX	XXX	X	XXX	–	–	–	–	–	–
	• SECONDARY MORTGAGE MARKET TRADING	–	X	XXX	–	X	XXX	–	–	–	–	–	–
ADMINISTRATION	• PERSONNEL RECORDS	XX	XX	XX	X	XX	XX	–	XX	XX	–	–	–
	• PAYROLL	X	XXX	–	–	XX	–	–	–	–	–	–	–
	• AUTOMATIC DEPOSITS	XXX	X	XXX	XXX	X	XXX	X	XX	XX	–	XX	XX
FINANCIAL MANAGEMENT	• FINANCIAL PLANNING	–	XXX	XXX	–	X	XXX	–	–	–	–	–	–
	• FINANCIAL REPORTING	XXX	X	XXX	XXX	X	XXX	X	XX	XXX	–	XX	XX
	• PORTFOLIO MANAGEMENT	–	XXX	XXX	–	X	XXX	–	–	–	–	–	–
CONSUMER SERVICES	• POS/ATM	XXX	X	XXX	XX	XX	XXX	X	X	XXX	–	X	XXX
	• NOW ACCOUNTS	X	X	X	X	X	X	X	X	X	–	X	XXX
	• PAY BY PHONE	XX	X	XXX	XX	X	XX	X	X	XX	–	X	XXX
	• CREDIT CARDS	XX	XX	XXX	XX	XX	XXX	X	X	XXX	X	X	XXX
	• CONSUMER INSTALLMENT LENDING	XX	–	XXX	X	–	XXX	–	–	–	–	–	–

– NOT USED
X LESS THAN 25%
XX BETWEEN 25% AND 75%
XXX OVER 75%
IH IN-HOUSE
CS COMPUTER SERVICES
INT INTERACTIVE MODE

- The portion of S&Ls that use the interactive mode of delivery (whether in-house or computer services) versus other modes.

- For example, Market Rate Certificates are automated by only very large and large S&Ls. For very large S&Ls, more than 75% of the processing is accomplished in-house.

  - The interactive mode is the delivery method more than 75% of the time.

  - Large S&Ls use computer services vendors less than 25% of the time to process money maket certificates. Those large S&Ls using either in-house or computer services vendors to process money market certificates do so in the interactive more over 75% of the time.

- The most important function within the savings application is passbook savings. Passbook savings calls for interactive computing using slow speed teller terminals with an average of 2.5 transactions per account per month.

- Over 80% of EDP activity in the loan application relates to mortgage loans.

- Some 60 S&Ls are currently using computer-aided loan appraisal, using a data base of residential property sales histories. The number of S&Ls is expected to increase to over 500 by 1984.

- Financial planning and forecasting using models and data bases supplied through RCS vendors is growing in importance. In 1978 well over half the very large and large S&Ls had business economists doing portfolio analysis, money market forecasting, and strategic planning using RCS services.

- Consumer services is the fastest growing area offering good potential for new computer services offerings.

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- At least seven states allow S&Ls to offer NOW (Negotiable Order of Withdrawal) accounts. Pending federal legislation will open up the option to all federal S&Ls.

- Visa and Mastercharge both allow S&Ls to issue credit cards.

- S&Ls throughout the country have pioneered local EFTS networks for both shared ATM's and POS terminals.

2. USE OF COMPUTER SERVICES

- The savings and loan industry is highly automated. In 1978, 85% of all S&Ls used either in-house or computer services for transaction processing. Nearly all the medium to very large S&Ls were automated, while 68% of the small S&Ls were users. By 1984, all but 15% of the small S&Ls will be automated.

- The smaller the S&L the more likely it is to use outside computer services. Exhibit IV-5 shows the relative utilization of in-house and outside EDP by S&L size.

- Very large S&Ls have chosen primarily to go the in-house route. They are likely to remain in-house, although at least two are using outside computer services vendors.

- All other factors being equal, large S&Ls would just as soon stay with computer services vendors. S&L executives recognize the high cost of maintaining and enhancing software to provide for additional consumer services.

- Medium size S&Ls are relatively small organizations. They generally lack the resources for a seperately assigned DP officer. Medium size S&Ls are heavily dependent on computer services organizations for their daily processing.

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EXHIBIT IV-5

DISTRIBUTION OF EDP UTILIZATION FOR SAVINGS AND LOAN ASSOCIATIONS BY SIZE (1978-1984)

SAVINGS AND LOAN SIZE	IN-HOUSE (%)		COMPUTER SERVICES (%)		NOT AUTOMATED	
	1978	1984	1978	1984	1978	1984
VERY LARGE	97%	99%	3%	1%	0%	0%
LARGE	41	45	59	55	TRACE	0
MEDIUM	9	12	88	88	3	0
SMALL	3	8	65	77	32	15

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- Managers of small S&Ls will usually choose the computer services route, often decreasing total EDP cost by giving up in-house manual ledger keeping or batch processing systems to go on-line with a computer services vendor.

- Very large and some large S&Ls have directors of data or information processing. They order professional programming services and software products for in-house use.

- Chief financial officers in very large and large S&Ls order financial and economic RCS services. Some very large S&Ls have business economists who order RCS services for financial forecasting.

- Chief loan officers in very large and large S&Ls order data base-related RCS services for automated loan appraisal and secondary mortgage market operation.

- In medium-size S&Ls, the chief financial or chief operating officer orders all computer services.

- In small S&Ls, the president or association manager selects computer services vendors.

3. EXISTING PRODUCTS

- Users generally feel that existing services and software products meet most of their current requirements. S&Ls were one of the first industries to use on-line interactive systems for daily processing. As such, vendors have had more time and experience in providing needed products and services.

- S&Ls have increased customer services through on-line systems. S&Ls have turned to centralized data base or information files (CIF) to rapidly respond to customer account inquiry and provide consolidated account statements.

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- S&L executives would like to see further improvement in the reliability of both teller terminals, and on-line processing networks. S&L executives would like to have their branches continue consumer operation during periods when the central host or processing network is inoperative.

4. NEEDED PRODUCTS

- S&L executives at large and very large S&Ls indicated the need for software products in the following areas:
  - Automatic clearing house (ACH) interface.
  - NOW Accounting.
  - Pay-by-phone.
  - Consumer installment lending.
  - Credit card processing and accounting.
- S&L executives in large to small S&Ls were primarily interested in computer services for:
  - NOW accounts.
  - Mortgage lending.
  - Pay-by-phone.
- S&Ls executives were interested in establishing joint ventures, either with other S&Ls and banks or with computer services vendors for operation of:
  - POS/ATM networks.

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- Credit card processing.

- NOW account processing.

5. INDUSTRY ISSUES

a. Government

- Permission to issue money market certificates has saved S&Ls from losing deposits during periods of high market interest rates.

  - The ability to sell mortgage-backed securities has helped the larger S&L stock companies.

  - Permission to issue variable interest rates and early year interest-only mortgages has helped S&L lending.

- Federal legislation will eventually eliminate the interest rate ceiling differential (Reg. Q) between banks and S&Ls. Coupled with this will be permission for all S&Ls to offer NOW accounts.

- Federal legislation will eventually permit S&Ls to join local then national EFT networks, opening the door to consumer credit.

b. Distributed Data Processing (DDP)

- S&L executives perceive DDP as a means of insuring that their branches remain on-line even if the host processor is either down or not available.

- S&L executives believe that through DDP they will have greater access to EFTS systems.

- A very large California S&L has implemented DDP within its own branch network, using GA 16/110 minicomputer branch processors and GA 16/440

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minicomputer satellite systems communication processors into an IBM 370 host.

c. Facilities Management

- S&L executives showed little interest in FM arrangements. Most executives of large and very large S&Ls had considered and rejected FM.

- The availability of a wide variety of S&L computer services vendors acts as a barrier against greater S&L use of FM services.

- There are a number of S&L joint venture service companies which might be targets for FM if the FM vendor offers sufficient incentive, such as EFTS networking, to member S&Ls.

d. User Site Hardware Services (USHS)

- There was little indication that S&Ls considered or had been approached by computer services vendors offering USHS.

- S&L executives were open to the USHS possibility as part of a program to use DDP to enhance service offerings (EFTS), increase reliability, or reduce overall cost (DP and communications).

D. COMPETITIVE ENVIRONMENT

1. COMPETITIVE STRUCTURE

- Nearly 200 vendors supply services to S&Ls. These vendors fall into five types as shown in Exhibit IV-6. The total number of vendors is declining, primarily through acquisition and merger.

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EXHIBIT IV-6

COMPUTER SERVICES VENDORS' SHARE OF THE SAVINGS AND LOAN MARKET IN 1978

VENDOR TYPE	NUMBER OF VENDORS	NUMBER OF SAVINGS & LOANS SERVICED	PROCESSING REVENUES ($ MILLIONS)	MARKET SHARE (%)
SAVINGS & LOAN	40	475	$ 21	15%
SAVINGS & LOAN JOINT VENTURE	65	746	29	20
COMMERCIAL BANKS	39	339	14	10
FEDERAL HOME LOAN BANKS	4	610	18	13
COMMERCIAL RCS VENDORS	42	1,220	60	42
TOTAL	190	3,390	$142	100%

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- Commercial RCS vendors with 1978 revenues of $60 million currently control 42% of the market. Their share is increasing through a combination of vendor acquisition and purchase of operating accounts from commercial banks.

- Federal Home Loan Banks (FHLB) in Iowa, Illinois, Ohio and Pennsylvania were the largest single S&L computer services vendors. Federal court order requires FHLBs to divest their S&L computer services operations. Other services vendors are actively marketing for these accounts.

- State Street Bank and Trust Company of Boston, with 1978 revenues of $4 million, and Midland National Bank of Milwaukee, with 1978 revenes of $2.6 million, are leading bank processors for S&Ls.

- Commercial banks' share of the S&L market is expected to decline over the next five years as banks concentrate scarce EDP resources on consumer markets.

- Florida Information Management Services in the East, with 1978 revenues of $5 million, and Dataline Services Company on the West, with 1978 revenues of $4 million, are the leading joint venture services vendors.

- Respondents did not have any bias for or against using S&L joint venture arrangements. Joint venture servicers will likely continue to maintain their market share. However, joint venture arrangements may be susceptible to either acquisition or FM arrangements.

- No single S&L processes more than 560,000 accounts for other S&Ls. One very large S&L is interested in extending its processing services nationwide and may be a candidate for joint venture with a commercial RCS vendor.

- NCR Corporation is the largest commercial vendor serving S&Ls. They service over 450 S&Ls through nine regional centers. Their 1978 revenues from S&Ls are estimated at $18 million, or 30% of the commercial RCS vendor market.

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- ADP is probably the second largest commercial services vendor. ADP is on an active acquisition compaign. ADP, with 1978 estimated revenues of $6 million, services nearly 200 S&Ls.

- Real estate appraisal RCS services are offered through a joint venture between Tymshare Inc., and SREA Market Data Centers, Inc. The service was initially offered in three states but is being expanded to 38.

- Remote Computing Corporation (RCC) is the leading vendor of RCS services to S&Ls for financial planning. The Savings and Loan Planning Package (SLP) is offered to over 100 S&Ls. Competitive services are offered by both SBC and GEIS.

- RCC also operates the AMMINET system for Amminet, Inc. The systems support trading of mortgage packages in the secondary mortgage market.

- Electronic Data Systems (EDS) services some 30 S&Ls either directly by FM or though data centers EDS operates for their clients. National Sharedata and Boeing Computer Services also provide FM to S&Ls.

- Respondent S&L executives felt that the competitive structure of S&L computer services vendors was changing. Lacking capital to keep pace with rapidly changing technology, many smaller commercial companies will merge or be acquired.

- Some S&L joint venture companies will elect merger or acquisition by commercial computer services vendors rather than invest capital to remain competitive.

2. VENDOR PERCEPTIONS

- RCS vendors preceive the S&L market as closely allied to the commercial bank market for both products and services.

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- At least two vendors, NCR and ADP, have singled out S&Ls for special attention.

- Vendors perceive that most S&Ls lack the capital and technical staff to support in-house EDP systems and are good candidates for increased computer services.

- Vendors plan to use improved data base management and communciations networking systems to offer S&Ls enhanced on-line consumer services such as telephone funds transfer and consumer initiated inquiry.

E. PRODUCT AND MARKETING ISSUES

1. PRODUCT STRATEGIES

- On-line interactive processing is the principal method of automated processing for S&Ls.

- Computer services vendors must be able to support a wide variety of teller, administrative, data entry and customer inquiry terminals on an interactive basis.

- Modular teller terminals support the following devices:

  - Keyboard for data entry.

  - Forms printers for passbooks and paper documents.

  - CRT for inquiry and response.

  - Magnetic encoded stripe plastic cards.

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- Pin pads.

- Systems must handle five to six transactions/second while maintaining transaction response time between two to four seconds for 80% of the transactions. Maximum response time must not exceed seven to eight seconds for no more than 10% of the transactions.

- S&L computer services organizations frequently use a minicomputer (GA 16/110 or PDP 11/34) as a communication front end.

- S&Ls currently use leased communications lines. Leased line cost is a barrier for nationwide S&L processing centers.

- For local branch operations, 1200 bps lines are used to support 6 to 10 terminals through both drop points and programmable micro communications processors. Between satellite communciations processors, 2400 bps lines are used, and 4800-9600 bps line are used by the central host.

- Host processors must have the capacity to handle peak quarterly printing workloads for divided notices, checks, federal tax and extensive regulatory reporting. COM equipment is frequently required to support output requirements.

- S&L executives are particularly sensitive about data security. They are reluctant to shift from leased lines to packet switching or to dial up services unless adequate data encryption techniques are available.

- S&L executives are looking at centralized data base products/services. They feel the CIF approach is the key to effective S&L consumer operations.

- EFTS networks for S&Ls must support both POS and ATM terminals. The network must contain an electronic switch. The switch is composed of communciation processors which route messages to the communications processor front end of the central processor at the switching center.

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- The switch central processor acts as an automated clearing house (ACH) for participating S&Ls, and may be interconnected to other EFTS networks, including credit verification and credit card networks.

2. MARKETING STRATEGIES

- The S&L industry can be approached as a subset of the banking industry.

- Successful marketeers of computer services to S&Ls should be well versed in the needs and activities of both types of financial institutions. An inter disciplinary approach is a key to successful market penetration.

- Specific knowledge is needed in the following areas:

  - In-depth understanding of S&L consumer operations.

  - Communication network design.

  - Carrier rate structures.

  - Electronic funds transfer systems.

  - Data base management systems.

  - Data security, pin pad operation.

- The marketing staff must keep well informed on both pending state and federal legislation and regulations affecting financial markets.

- Applications specialists are required in the following areas:

  - MBAs versed in financial management and planning (FMP) to support S&L business planners.

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  - Ph.D. consulting economists to deal with economists in large and very large S&Ls in forecasting financial markets.

  - Specialists in secondary mortgage market operation.

- Pricing of on-line computer services on a "per account" basis has become a defacto industry standard. This method allows S&L operations managers to adequately budget for S&L computer processing services.

- Over the next three to five years, electronic funds transfer (EFT) systems will force significant changes in S&L operations. EFTS will become fundamental to the long-range viability of S&L computer services vendors.

- One of the most promising marketing approaches for successful computer services vendors is to combine vendor-developed EFTS networks with S&L market outlets through joint ventures with very large S&Ls or with S&L leagues.

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V COMPUTER SERVICES MARKETS IN CREDIT UNIONS

V COMPUTER SERVICES MARKETS IN CREDIT UNIONS

A. SUMMARY AND RECOMMENDATIONS

1. SUMMARY

- The credit union industry is growing rapidly and is becoming increasingly automated.

- Of the 22,500 credit unions in the country, 9650 (over 42%) use computer services.

- Expenditures for computers services were $77 million in 1978, and this will rise to $205 million in 1984 - an AAGR of 18%.

- Credit unions are using EDP for:

  - Share saving.

  - Share loans.

  - General accounting.

  - Share draft accounting.

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- Consumer services.

- Share saving and share loans account for 85% of computer services expenditures.

- Share draft accounting is expected to have a 70% AAGR over the next five years, while consumer services - ATM, credit cards, pay-by-phone, etc. - are expected to have a 60% AAGR over the same period.

- At present, of those credit unions that are automated, batch processing is the dominant delivery mode, with 53% of EDP done in this manner. However, a rapid shift to on-line RCS is taking place, and by 1984, 62% of credit union EDP processing will be on-line. Expenditures for on-line services are expected to grow from $23 million in 1978 to $102 million by 1984, an AAGR of 28%.

- Large and very large credit unions are shifting to in-house minicomputers, and this trend will continue.

- Credit union executives show little interest in Distributed Data Processing (DDP).

- Credit unions executives are interested in Facilities Management (FM) by credit union centrals and by joint ventures. EDS performs FM for the Credit Union National Association (CUNA).

- Credit union interest in User Site Hardware Systems (USHS) centers around share draft accounting and new consumer services.

- Commercial EDP processing vendors had 1978 revenues of $38 million and control 63% of the credit union processing market.

- SBC is the leading RCS vendor, with 1978 credit union revenues of $9 million. The company provides both batch and remote batch processing, and is planning to upgrade to on-line services using USHS.

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- ANACOMP, Inc., is actively acquiring credit union systems vendors. This firm's 1978 credit union revenues were $3 million.

- The credit union market structure is rapidly changing. Such relatively new credit union innovations as those listed below directly challenge commercial banks and savings and loans.

  - Share draft.

  - Mortgages.

  - Credit cards, pay-by-phone, EFTS.

  - Credit union national liquidity funds system.

  - Insurance for share accounts.

  Consequently, these industries show little interest in upgrading credit unions.

- Credit unions, in turn, are pushing their competitive advantage, taking on many bank functions.

2. RECOMMENDATIONS

- There are many opportunities for vendors to offer new products and services to the rapidly changing credit union market.

  - Offer services to leagues and central credit unions, such as FM or establishing a local ACH.

  - Offer a good on-line general ledger package.

  - Prepare to handle share draft processing.

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- Offer credit card processing.

- Watch, and prepare to act upon, the development of a national credit union funds transfer network.

- Canvas commercial banks to see if they will sell off any credit union processing they might have.

- Establish a specialty group within marketing to handle financial institutions, such as credit unions.

- To enter, or to enlarge a share of, the credit union market, consider the acquisition as well as the new services route.

B. MARKET ANALYSIS AND FORECAST

1. MARKET STRUCTURE

- As shown in Exhibit V-1, there are 22,500 credit unions in the United States, holding 39 million accounts and assets of $61 billion.

- While the aggregate number of credit unions is not growing, large and very large credit unions have an AAGR of 13%.

- Consolidation and merger is occurring among small credit unions as they decline in number.

- Large and very large credit unions, while representing only 8% of total credit unions, hold 85% of the industry's assets and 56% of its accounts.

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EXHIBIT V-1

MARKET STRUCTURE OF CREDIT UNION SUBSECTOR

BY SIZE IN 1978

CREDIT UNION SIZE	SIZE ASSETS ($)	NUMBER	AAGR %	ASSETS ($B)	AAGR %	ACCOUNTS (M)	AAGR %
VERY LARGE	>$20M	575	13%	$28	16%	12	12%
LARGE	5-20M	1,209	13	14	14	10	9
MEDIUM	1-5M	4,657	7	13	9	10	6
SMALL	<1M	16,059	-	6	5	7	-
TOTAL		22,500	-	$61	13%	39	7%

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- The industry as a whole expects a more rapid growth rate in terms of assets and accounts due to the new opportunities granted to federally chartered credit unions.

- Credit unions are experiencing an aggregate five year AAGR of 7% for account growths, with the very large organizations having a 12% growth rate.

- State chartered credit unions constitute 43% of the industry and hold 14% of total credit union assets.

- Credit unions are mutual organizations. Like the savings and loan industry, entrepreneurs may be able to shift selected state chartered credit unions to stock companies, opening the door to accelerated growth through merger and consolidation.

- The number of share accounts is uniformly distributed according to size, and thus small credit unions, though decreasing in number, are still a viable market area.

2. MARKET FORECAST

- Expenditures for EDP services in the credit union industry will increase from $77 million in 1978 to $205 million in 1984, an AAGR of 18% (Exhibit V-2).

- All but the largest of credit unions depend upon computer services vendors. As share draft and EFT become more widespread, this dependence will increase.

- As shown in Exhibit V-2, share savings in the single biggest credit union operation and the biggest source of computer services expenditures - 65% of the total in 1978.

- However, share draft accounting is the greatest growth area. With a 71% AAGR, expenditures on share draft accounting will reach $25 million by 1984.

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EXHIBIT V-2

COMPUTER SERVICES MARKET FORECAST FOR BANKING AND FINANCE BY APPLICATION (1978-1984): CREDIT UNION SUBSECTOR

APPLICATION	USER EXPENDITURES			
	1978 ($M)	1979 ($M)	1984 ($M)	AAGR %
SHARE SAVINGS - PASSBOOK, CERTIFICATES, IRA, KEOGH	$50	$57	$115	15%
SHARE LOAN - PERSONAL, INSTALLMENT, MORTGAGE	17	19	33	12
SHARE DRAFT ACCOUNTING	1	2	25	71
GENERAL ACCOUNTING - BRANCH ACCOUNTING, GENERAL LEDGER, AUDIT, INSURANCE	8	11	16	12
CONSUMER SERVICES - ATM, CREDIT CARDS	1	2	16	59
- AUTOMATIC DEDUCTIONS AND PAYMENTS				
TOTAL	$77	$91	$205	18%

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- Consumer services - credit card processing, ATMS and pay-by-phone - is also a fast growing area, with a 59% AAGR and estimated 1984 expenditures of $16 million.

- Exhibit V-3 shows that the current major delivery mode is batch (53% of total). However, credit unions are shifting to on-line services.

  - RCS has a 28% AAGR in credit unions, and 1978 expenditures of $23 million in this area are expected to rise to $102 million by 1984.

  - While the use of batch is on the decline, it will still be a significant 30% of computer processing in 1984 and will still acount for some major areas of business.

  - General Business Services, including general ledger, for example, will continue to be done predominantly in the batch mode through 1984.

- Credit union executives seem to have limited use for FM, which will have an estimated AAGR of 22% through 1984. While this growth may be attributable to new credit union lending powers, FM will primarily be used by national and state central organizations.

- Large and very large credit unions presently have a limited number of in-house systems. Due to the availability of credit union systems on minicomputers, the use of in-house systems is expected to increase, especially by very large credit unions.

- Large and medium-size credit unions account for 65% of total computer services expenditures in 1978, and will remain a prime market attraction for vendors.

- Small credit unions will also be a segment of interest as they represent 26% of total computer services processing expenditures.

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EXHIBIT V-3
COMPUTER SERVICES MARKET FORECAST FOR
BANKING AND FINANCE BY SERVICE MODE (1978-1984):
CREDIT UNION SUBSECTOR

COMPUTER SERVICE		USER EXPENDITURES			
MODE	TYPE	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
REMOTE COMPUTING SERVICES	GENERAL BUSINESS	$ 3	$ 5	$ 8	18%
	INDUSTRY SPECIALTY	18	23	89	31
	UTILITY	2	2	5	16
	TOTAL	$23	$30	$102	28
FACILITIES MANAGEMENT	GENERAL BUSINESS	–	–	–	–
	INDUSTRY SPECIALTY	5	6	17	22
	UTILITY	–	–	–	–
	TOTAL	$ 5	$ 6	$ 17	22%
BATCH	GENERAL BUSINESS	5	6	8	8
	INDUSTRY SPECIALTY	27	28	38	6
	UTILITY	–	–	–	–
	TOTAL	$32	$34	$ 46	6%
TOTAL PROCESSING	GENERAL BUSINESS	8	11	16	12
	INDUSTRY SPECIALTY	50	57	144	19
	UTILITY	2	2	5	16
	TOTAL	$60	$70	$165	18%
SOFTWARE PRODUCTS	SYSTEM	2	2	5	15
	APPLICATION	8	10	18	15
	TOTAL	$10	$12	$ 23	15%
PROFESSIONAL SERVICES		7	9	17	16
TOTAL		$77	$91	$20.5	18%

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3. INFLUENCING FACTORS

- Major changes are taking place both within the credit union industry itself and in the milieu in which it operates.

- Credit unions are not yet heavily regulated and thus have greater freedom of action than other financial organizations.

- Credit unions are encroaching more into areas formally serviced by banks and S&Ls and are competing directly with other financial institutions for the consumer dollar.

- As credit unions mature, they are undergoing major structural changes:

  - A national credit union system is evolving.

  - Membership is increasing.

  - Credit unions have new powers in consumer lending:

    . Savings certificates.

    . Mortgages.

    . Mobile home loans.

    . Consumer credit.

    . Share drafts.

  - Central credit unions are providing funds liquidity.

  - A national credit union funds agency like the Federal Reserve is evolving.

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- Federal legislative and regulatory changes will erode the differences between credit unions and S&Ls.

- Credit unions are turning towards consumerism. In the near future, most credit unions will:

  - Join ACHs.

  - Issue share drafts.

  - Join EFTS networks.

C. USER ANALYSIS

1. APPLICATIONS

- There are five major applications for which a credit union may use EDP, either in-house or through a vendor service:

  - Share saving.

  - Share loans.

  - Share draft accounting.

  - General accounting.

  - Consumer services.

- Credit union size, as shown in Exhibit V-4, frequently determines the extent of EDP utilization, the mode of delivery, and the extent of employment of computer services vendors.

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EXHIBIT V-4

EDP UTILIZATION FOR CREDIT UNION APPLICATIONS BY SIZE

APPLICATION	APPLICATION FUNCTIONS	CREDIT UNION SIZE											
		VERY LARGE			LARGE			MEDIUM			SMALL		
		IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT
SHARE SAVINGS	• SHARE ACCOUNTS	XX	XX	XX	XX	XX	XX	X	XXX	XX	–	XXX	X
	• CERTIFICATES	XX	XX	XX	XX	XX	XX	X	XX	X	–	X	–
	• IRA + KEOGH	XX	XX	XX	XX	XX	XX	X	XX	X	–	–	–
SHARE LOAN	• MORTGAGE LOANS	XX	XX	XX	X	XX	XX	X	X	X	–	–	–
	• PERSONAL LOANS	XX	XX	XX	XX	XX	XX	X	XXX	XX	–	XXX	X
	• INSTALLMENT LOANS	XX	XX	XX	XX	XX	XX	X	XX	X	–	XX	X
SHARE DRAFT ACCOUNTING	• SHARE DRAFT PROCESSING	XX	XX	XX	X	X	X	–	XX	X	–	–	–
	• OVERDRAFT PROTECTION	XX	XX	XX	X	X	X	–	X	X	–	–	–
GENERAL ACCOUNTING	• BRANCH ACCOUNTING	XX	XX	XX	X	X	X	–	–	–	–	–	–
	• GENERAL LEDGER	XX	XX	X	XX	XX	X	X	X	X	–	X	–
	• INSURANCE	XX	XX	XX	XX	XX	X	X	X	X	–	XXX	X
CONSUMER SERVICES	• ATM	X	X	XX	X	X	–	X	X	–	–	–	–
	• CREDIT CARDS	X	X	X	X	X	–	X	X	–	–	–	–
	• AUTOMATIC DEDUCTIONS	XX	XX	XX	XX	XX	X	XX	X	–	X	X	X
	• PAY-BY-PHONE	X	X	X	X	X	–	X	X	–	–	–	–

– NOT USED
X LESS THAN 25%
XX BETWEEN 25% AND 75%
XXX GREATER THAN 75%

IH - IN-HOUSE
CS - COMPUTER SERVICES
INT - INTERACTIVE MODE

- The major EDP functions accomplished within each of the five major applications are shown in Exhibit V-4. For each function, estimates are provided, by size of credit union, of the portion of EDP services accomplished in-house, by outside computer services, and by interactive processing.

  - Small credit unions do not use EDP for mortgage loans. Medium sized credit unions will do mortgage loans less than 25% of the time by in-house EDP or by using computer services, and they will use the interactive mode less than 25% of the time. Very large credit unions will do mortgage loans either in-house or by computer services - splitting the work between 25% and 75% of the time by these service methods.

  - The most important function within the Share Saving application is share accounting - primarily done by interactive computing.

- Over 80% of current EDP utilization in share loans is for personal loans. However, mortgage and installment loans in the larger credit unions are growing rapidly and will become more important to computer activity.

- Share draft processing is potentially the fastest growing EDP area and will require both new software and MICR hardware to meet future service demands.

- Consumer services, another fast growing area, offers good potential for new computer services offerings.

- At least 12 states presently allow credit unions to offer share drafts. Pending federal legislation will eventually open up this option to all federally chartered credit unions.

- Large and very large credit unions are also turning to VISA and Mastercharge credit cards. CUNA is attempting to establish a national credit card network.

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- Large and very large credit unions are beginning to install shared ATMs as a prelude to local or national EFTS networks.

2. USE OF COMPUTER SERVICES

- Credit unions are rapidly automating. In 1978, 68% of all credit unions were automated, using either in-house or outside computer services. This will increase to 76% of all credit unions by 1984.

- As shown in Exhibit V-5, nearly all of the large and very large credit unions are automated and 84% of the medium sized.

  - By 1984, all but 6% of the medium and 40% of the small credit unions will automated.

  - Except for the very large organizations, the major portion of credit union EDP is done by outside services.

- The increased use of minicomputers will cause some shift of EDP from outside to in-house for large and very large organizations.

- Credit unions are, in general, very small organizations and all except the largest of them are highly dependent upon computer services vendors.

- To get additional services, the smaller credit unions will automate, primarily choosing the on-line route.

- Very large credit unions, when they have in-house systems, have DP managers who order software products and other services for in-house use.

- In large credit unions, the chief accountant orders computer services.

- For medium and small credit unions, the manager is the person to see when selling on-line RCS computer services.

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EXHIBIT V-5

DISTRIBUTION OF EDP UTILIZATION FOR CREDIT UNIONS BY SIZE

(1978-1984)

CREDIT UNION SIZE	IN-HOUSE (%)		COMPUTER SERVICES (%)		NOT AUTOMATED (%)	
	1978	1984	1978	1984	1978	1984
VERY LARGE	60%	70%	40%	30%	0%	0%
LARGE	36	40	62	60	2	0
MEDIUM	10	6	74	88	16	6
SMALL	0	0	40	60	60	40

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3. EXISTING PRODUCTS

- Credit union respondents generally feel existing services meet most requirements. Most of these respondents are presently operating in the batch mode and are beginning to realize the advantages of on-line operations.

- Forward-looking credit unions executives plan to increase services through on-line systems to handle:

  - Single statement accounts.

  - CIF.

  - ATM.

  - Credit cards.

- Executives at large or very large organizations are looking for software operating on minicomputers for in-house use.

- Some very large operations have reached the point where they are looking at automated teller machines.

4. NEEDED PRODUCTS

- Credit union respondents report that, while a large number of new products are needed, both software and computer services vendors have been slow to respond to change.

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- Credit union executives with in-house installations are looking for software products in:
  - Automatic payments.
  - Pay-by-phone.
  - Credit card accounting.
  - Share draft accounting.
  - Mortgage lending.
  - ATMs.
- Credit union executives using outside computer services are looking for additional services for:
  - Share draft processing.
  - ACH interface.
  - Mortgage lending.
  - Pay-by-phone.
- Credit unions are looking to their state central organizations or the National Credit Union Administration (NCUA) for help in establishing:
  - EFTS networks.
  - Credit card processing networks.

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5. INDUSTRY ISSUES

a. Government

- In the last two years, significant changes in government regulations have vastly expanded the scope of services that can be performed by credit unions. New rules have allowed credit unions to:

  - Make home mortgage loans.

  - Insure their share accounts.

  - Participate in a national funds liquidity system.

  - Use a portion of their reserves for consumer credit.

- Pending government legislation will open further doors for credit unions:

  - Federal credit unions will be allowed to offer share drafts.

  - Credit unions will be allowed to participate in EFTS networks.

  - Credit unions will offer credit cards.

b. Distributed Data Processing (DDP)

- Credit union executives seem to have little interest in DDP. Credit unions are mostly small, local organizations, with few branches. The only possible use these organizations would have for DDP would be as a USHS user.

- Where DDP has been considered, it has usually been rejected because of equipment cost and staffing requirements.

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c. Facilities Management (FM)

- Some interest in FM has been expressed by credit union centrals and joint-ventures.

- Possible FM targets are credit card networks and EFTS networks.

- Electronic Data Systems Corporation (EDS) performs FM for CUNA.

d. User Site Hardware Services (USHS)

- Credit union interest in USHS centers around its utilization for new services:

  - Share draft.

  - Credit card processing.

  - EFTS.

- Service Bureau Corporation (SBC), with the largest market share of remote computing services, may install USHSs in some large and very large credit unions.

D. COMPETITIVE ENVIRONMENT

1. COMPETITIVE STRUCTURE

- At present, 85 vendors are supplying computer services to credit unions. These vendors fall into three main types:

  - Joint ventures.

  - Commercial banks.

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- Commercial RCS vendors.

- The total number of vendors is declining, primarily through acquisition and merger.

- As shown in Exhibit V-6, commercial RCS vendors, with 1978 revenues of $38 million, control 63% of the market. This share is increasing through a combination of company acquisition and purchases of operating accounts from commercial banks.

- Users, Inc., a Washington, D.C. area company, is the largest joint venture concern, with over 2 million credit union accounts and 1978 revenues of $5.2 million.

- CUNADATA, Inc., the DP subsidiary of CUNA, processes over 2 million accounts and had 1978 revenues of $5 million. CUNADATA uses EDS for Facilities Management.

- ANACOMP, Inc., is actively acquiring credit union account processors:

  - Computer Services Corporation, a Michigan firm, was acquired in 1978.

  - Access Data Systems, an Arizona firm, was obtained in 1979.

  - ERCO, Inc., was acquired from CUBE, Inc., in 1979.

- SBC is the leading commercial RCS vendor, offering both batch and remote batch services. SBC serves 5 million credit union accounts and had 1978 revenues of $9 million. The company's FOCUS system is on-line. SBC is looking at an USHS mini.

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EXHIBIT V-6

COMPUTER SERVICES VENDORS' SHARE OF

THE CREDIT UNION MARKET IN 1978

VENDOR TYPE	NUMBER OF VENDORS	PROCESSING REVENUES ($ MILLIONS)	MARKET SHARE (%)
JOINT VENTURES	18	$15	25%
COMMERCIAL BANKS	32	7	12
COMMERCIAL RCS VENDORS	35	38	63
TOTAL	85	$60M	100%

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- Credit union joint ventures are vulnerable to changing market conditions. The advent of new credit union opportunities such as share drafts, credit cards, and EFTS has muddied the joint venture waters, and many such organizations have elected to merge or be acquired.

2. VENDOR PERCEPTIONS

- Computer services vendors perceive the credit union market to be closely allied with that of savings and loans.

- Only two vendors, SBC and ANACOMP, specialize in credit unions.

- Vendors believe that there are many good acquisition candidates in the marketplace for those organizations wishing to enhance their position or to enter the field.

- Vendors are preparing for share draft services to become a nationwide operation.

- Vendors are planning to introduce and promote the use of minicomputers in credit unions. Two firms, EDP Corporation of Salt Lake City and CUSYS, Inc., of New York, are already in this area.

E. PRODUCT AND MARKETING ISSUES

1. PRODUCT STRATEGIES

- On-line interactive processing is the principal method of automated processing for credit unions.

- Computer services vendors must support both CRT and typewriter terminals on an interactive basis.

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- Computer services vendors must be able to support ATMs, especially for large and very large credit unions.

- Systems must be able to handle a transaction response time of 2-4 seconds for 80% of the transactions.

- Share drafts, liable to be widely used in the future, require MICR processing.

- Vendors must provide USHS minicomputer systems to large and very large credit unions and micro driven terminal systems to smaller facilities; all system will require the ability to interface with EFTS networks.

- Credit union executives are interested in the development of EFTS networks for credit union leagues and credit union centrals.

  - Credit union executives see a need for automated clearing houses (ACHs) for credit union leagues and credit union centrals.

  - There is also a need for DBMS to develop new CIF oriented processing software.

2. MARKETING STRATEGIES

- The credit union industry must be approached as a subset of the banking industry.

- To market computer services successfully to this industry, the vendor must be well-versed in the needs and requirements of all types of financial institutions. The vendor will also find that an interdisciplinary approach will have the most chance of success.

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- Specific knowledge is needed in:
  - Credit union consumer operations.
  - CIF.
  - EFTS.
  - Share draft accounts.
  - Credit card processing.
  - Data security.
- The vendor's marketing staff must be very well informed on present and pending regulatory and statutory issues - at both the federal and state level.
- Vendors should account price services within transaction limits.
- A promising marketing approach for successful vendors is to combine vendor-developed financial transaction networks with credit union consumer outlets through a joint venture with credit union leagues or credit union centrals.

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VI COMPUTER SERVICES MARKETS IN FINANCE COMPANIES

VI COMPUTER SERVICES MARKETS IN FINANCE COMPANIES

A. SUMMARY AND RECOMMENDATIONS

1. SUMMARY

- There are some 3,200 finance companies in the United States. The total number is declining as merger and liquidation take place, but very large firms are growing at a 7% AAGR.

- Most finance companies offer both consumer and commercial financing services, although some specialize in one or the other.

- Very large firms hold 90% of finance company credit outstanding and large and very large firms together have 95% of consumer finance accounts in this industry.

- Consumer accounts - presently 35 million - are declining at a rate of 4% per year as credit unions and credit cards draw consumer finance business.

- Large and very large firms are frequently part of finance holding companies.

- Finance companies are moving into commercial lending and the large and very large firms have portfolios equally divided between consumer and commercial.

- Only 44% of finance companies are automated.

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- Medium and small firms use computer services almost exclusively.

- Small companies with less than $2 million in annual revenues are only marginal candidates for computer services.

- Computer services expenditures were $58 million or 30% of the total finance company EDP budget in 1978 with expenditures rising at a 12% AAGR.

- In 1978, 70% of computer services were for the consumer installment loan application.

- Finance companies are going on-line at the branch level. RCS services are becoming the dominant delivery mode and will reach 62% of total processing services in 1984.

- Finance company executives presently see little direct use for FM arrangements.

- Finance company executives showed little interest in Distributed Data Processing.

- Finance company respondents showed little interest in User Site Hardware Systems.

- Finance companies constitute a very specialized market area, an area presently served by less than 50 vendors falling into three types:

  - Data processing subsidiaries of finance companies.

  - Commercial banks.

  - Computer services vendors.

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- The leading computer services vendor to the industry is Action Data Services, a subsidiary of The Service Bureau Company (Control Data Corporation). Action Data had 1978 revenues of $9 million.

- Dial Computer Systems Corporation is the largest finance company subsidiary with 1978 revenues of $8 million.

2. RECOMMENDATIONS

- Opportunities appear to be limited in the finance company sector. In such a specialized market, the vendor should proceed with caution.

- Vendors should concentrate on medium and large finance companies.

- Offer very large firms RCS network services between branches and the headquarters facility host for on-line data entry and inquiry.

- Purchase finance company processing accounts from commercial banks.

- Focus attention on small commercial vendors. Some of these firms lack capital to keep pace with new market charges and are amenable to takeover.

- Establish a specialized group within marketing to handle financial institutions. This group should be staffed by personnel with direct knowledge of, and experience in, consumer financing.

- Account price services.

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B. MARKET ANALYSIS AND FORECAST

1. MARKET STRUCTURE

- In 1978, there were 3,160 finance companies in the United States. As shown in Exhibit VI-1, the total number is declining (-2.3% AAGR) due to the merger and acquisition of smaller firms. Very large firms, however, had a 7% AAGR.

- Very large firms comprise 3% of the total number of finance companies yet hold 90% of the assets and credit outstanding.

- Finance companies are engaged in essentially two types of lending: commercial and consumer.

- Some firms specialize in commercial only (e.g., Walter Heller). Others specialize in consumer lending (e.g., Dial). Most, however, deal with both areas (e.g., Beneficial, CIT Financial).

- There has been a gradual shift from consumer finance dominance in the field to a mixture of consumer and commercial.

- Small companies still remain heavily consumer oriented (75% of their total credit outstanding). Very large companies, however, are almost evenly split with consumer lending accounting for 51% of total credit outstanding.

- Large and very large companies have nearly 95% of consumer finance accounts.

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EXHIBIT VI-1

MARKET STRUCTURE OF FINANCE COMPANY SUBSECTOR BY SIZE IN 1978

FINANCE COMPANY	SIZE CREDIT OUT-STANDING (%)	NUMBER	AAGR (%)	ASSETS ($B)	AAGR (%)	TOTAL CREDIT OUT-STANDING ($B)	AAGR (%)	PORTION OF TOTAL CREDIT CONSUMER FINANCE (%)	CONSUMER ACCOUNTS (M)
VERY LARGE	>$100M	108	7.1%	$104.7	9.7%	$ 90.3	9.5%	51%	30.7
LARGE	$25-100M	109	2.2	6.8	8.9	5.6	8.6	55	2.1
MEDIUM	$1M-25M	720	0.8	4.2	7.8	3.6	7.2	64	1.5
SMALL	<$1M	2,223	-	0.8	6.0	0.7	6.0	75	0.3
TOTAL		3,160	-2.3%	$116.5	9.4%	$ 100.2	9.2%	-	34.6

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- The number of accounts held by finance companies is decreasing at a rate of 4% per year, and the number of personal loans serviced by finance companies is also decreasing. Prime reasons for the decline are increased use of credit cards and growth of credit unions.

- There is an increase in the dollar amount of loans serviced because small loans are not profitable at allowable interest rates.

- There is a trend for large and very large finance companies to be a component of a financial holding company that may own banks, insurance companies, and mortgage companies.

2. MARKET FORECAST

- Finance companies are a highly specialized market for computer services.

- As shown in Exhibit VI-2, finance company expenditures for computer services stood at $53 million in 1978 and will grow to $107 million in 1984, an AAGR of 12%.

- Computer services represent only 30% of the 1978 finance company EDP expenditures of over $175 million. This portion will rise to 38% as finance companies go on-line, using RCS vendor networks interconnecting branch offices to a central host.

- Installment loans have been the primary application area for computer services. As shown in Exhibit VI-2, 1978 installment loan expenditures were 70% of the total, and this is expected to drop slowly to 68% in 1984 -a recognition of the growing importance of commercial financing.

- Batch (44%) and RCS (49%) modes were nearly equal in 1978, but this will rapidly change as finance companies go on-line with branch operations. In 1984, RCS is expected to be 62% of computer processing (Exhibit VI-3).

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EXHIBIT VI-2

COMPUTER SERVICES MARKET FORECAST FOR BANKING AND FINANCE BY APPLICATION (1978-1984): FINANCE COMPANY SUBSECTOR

APPLICATION	USER EXPENDITURES			
	1978 ($M)	1979 ($M)	1984 ($M)	AAGR %
INSTALLMENT LOAN	$37	$41	$73	12%
COMMERCIAL LOAN	8	9	18	14
GENERAL ACCOUNTING	5	5	9	10
FINANCIAL MANAGEMENT	3	4	7	16
TOTAL	$53M	$59	$107	12%

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EXHIBIT VI-3

COMPUTER SERVICES MARKET FORECAST FOR BANKING AND FINANCE BY SERVICE MODE (1978-1984): FINANCE COMPANY SUBSECTOR

COMPUTER SERVICE		USER EXPENDITURES			
MODE	TYPE	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
REMOTE COMPUTING	GENERAL BUSINESS	$ 3	$ 3	$ 6	13%
	INDUSTRY SPECIALTY	17	21	45	18
	UTILITY	2	2	4	11
	TOTAL	$ 22	$ 26	$ 55	17%
FACILITIES MANAGEMENT	GENERAL BUSINESS	–	–	–	–
	INDUSTRY SPECIALTY	3	4	6	12
	UTILITY	–	–	–	–
	TOTAL	$ 3	$ 4	$ 6	12%
BATCH	GENERAL BUSINESS	5	5	8	8
	INDUSTRY SPECIALTY	13	14	17	5
	UTILITY	2	2	3	5
	TOTAL	$ 20	$ 21	$ 28	6%
TOTAL PROCESSING	GENERAL BUSINESS	8	8	14	10
	INDUSTRY SPECIALTY	33	39	68	13
	UTILITY	4	4	7	10
	TOTAL	$ 45	$ 51	$ 89	12%
SOFTWARE PRODUCTS	SYSTEM	1	1	2	13
	APPLICA-TION	4	4	9	15
	TOTAL	$ 5	$ 5	$ 11	14%
PROFESSIONAL SERVICES		3	3	7	14
TOTAL		$ 53	$ 59	$ 107	12%

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- Finance companies have little direct use for facilities management. What FM there is usually results from an arrangement with the parent holding company.

- A significant portion (nearly 18%) of computer services is for general business applications.

- Finance companies are trying to establish branch accountability with a general ledger consolidation at the home office. Thus, a general ledger package is a necessary requirement of computer services.

- Large and very large finance companies use RCS for FMPS in areas of cash management, fund flows, and near-term interest rate forecasting.

3. INFLUENCING FACTORS

- Due to the changing marketplace, finance companies are shifting away from consumer lending, particularly in the areas of:

  - Auto loans.

  - Small consumer loans.

- Several factors account for this:

  - Credit unions are taking a larger share of auto and small personal loans.

  - Credit cards are being used for small loans and by a wider segment of the public.

  - Banks are making more new car loans to increase their share of the business.

- Moreover, present interest rate ceilings make small loan servicing unprofitable for finance companies; the average consumer loan amount was $1,500 in 1978.

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- Finance companies, therefore, are becoming more involved in commercial lending. Again, there are several market factors impelling this trend:

  - Due to high interest rates, corporations are shifting away from commercial banks as a source of money.

  - Very large finance companies can issue commercial paper cheaper than prime bank rates.

  - Finance companies are finding a ready market in near-term corporate financing of accounts receivable, inventory, and equipment leasing.

- Finance companies operate on a low capital base - sometimes as low as 10% equity. However, leveraged volume is needed to make a profit - the result is industry consolidation.

- Rising labor costs and a more mobile society increase the need for branch automation and will accelerate the movement to on-line services using RCS vendor data communication networks.

C. USER ANALYSIS

1. APPLICATIONS

- There are four major applications for which a finance company may use EDP, either in-house or through computer services:

  - Installment loans.

  - Commercial loans.

  - General accounting.

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- Financial management and planning.

- Finance company size is the most frequent determinant of EDP usage and mode of delivery.

- Exhibit VI-4 shows the portion of EDP use that is in-house, from computer services, and in the interactive mode by company size and for each of the major functions within the four applicational areas.

- For example, looking at the general ledger function within the general accounting application we can see that:

  - Less than 25% of small finance companies have an automated general ledger function, and where there is automation the company is served by computer services in the batch mode.

  - With medium-sized companies, 25-75% have general ledger done by computer services. Again, batch processing is predominant.

  - Large and very large finance companies are equally divided between computer services and in-house processing. Very large companies tend to use the interactive mode more than the large firms.

- The installment loan application is presently the major use for EDP. Large and very large companies are highly automated in this area, and are rapidly moving towards inter-branch, on-line interactive processing for both data entry and account/credit inquiry.

- Small and medium-sized finance companies use computer services almost exclusively in the installment loan application.

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EXHIBIT VI-4

EDP UTILIZATION FOR FINANCE COMPANY APPLICATIONS BY SIZE

APPLICATION	APPLICATION FUNCTIONS	FINANCE COMPANY SIZE											
		VERY LARGE			LARGE			MEDIUM			SMALL		
		IH	CS	INT	IH	CS	INT	IH	CS	INT	HI	CS	INT
INSTALLMENT LOAN	• PERSONAL LOANS	XX	XX	XX	XX	XX	X	–	XX	X	–	XX	X
	• CONSUMER DURABLES	XX	XX	XX	XX	XX	X	–	XX	X	–	XX	X
	• ON-LINE DATA ENTRY	XX	XX	XX	XX	XX	X	–	XX	X	–	XX	X
	• ON-LINE INQUIRY	XX	XX	XX	XX	XX	XX	–	XX	X	–	XX	X
COMMERCIAL LOAN	• IMPORT/EXPORT	XX	XX	XX	XX	X	X	–	–	–	–	–	–
	• ACCOUNTS RECEIVABLE FINANCING	XX	XX	XX	XX	XX	X	–	X	X	–	X	–
	• FACTORING	XXX	X	XX	XX	X	X	–	X	X	–	X	–
	• LEASING	XX	XX	XX	XX	XX	X	–	X	X	–	X	–
	• INVENTORY AND EQUIPMENT	XX	XX	XX	XX	XX	X	–	X	X	–	X	–
GENERAL ACCOUNTING	• GENERAL LEDGER	XX	XX	XX	XX	–	XX	–	X	X	–	X	–
	• BRANCH ACCOUNTING	XX	XX	XX	XX	–	X	–	XX		–	–	–
	• LOAN INSURANCE	XX	XX	XX	XX	–	XX	–	X		–	X	–
	• PAYROLL	X	XXX	X	X	–	XX	–	X		–	X	–
FINANCIAL MANAGEMENT AND PLANNING	• CASH MANAGEMENT	X	XXX	XXX	X	X	XXX	–	–	–	–	–	–
	• FLOW & FUNDS	XX	XX	XX	X	X	XX	–	–	–	–	–	–
	• MIS	X	XXX	XXX	X	XX	XXX	–	–	–	–	–	–
	• FINANCIAL FORECASTING	X	XXX	XXX	–	X	XXX	–	–	–	–	–	–

– NOT USED
X USED LESS THAN 25%
XX USED BETWEEN 25% AND 75%
XXX USED GREATER THAN 75%

IH – IN-HOUSE
CS – COMPUTER SERVICES
INT – INTERACTIVE MODE

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- Automation for the commercial loan application is mainly concentrated in large and very large finance companies, which have most of the commercial loan volume. Commercial loan automation is primarily at the home office and at regional levels.

- Very large finance companies are the prime users of RCS for the Financial Management and Planning (FMPS) application. Involved with economic forecasting of near-term commercial paper interest rates, they also need RCS services for cash management and funds flow analysis.

2. USE OF COMPUTER SERVICES

- Only 44% of all finance companies were automated in 1978. This portion will rise to nearly 60% by 1984.

- Exhibit VI-5 shows the relative utilization of EDP by company size. Large and very large firms are automated in most areas. In addition, one-third of the large and one-quarter of the very large firms use outside vendors for all or part of their EDP operations.

- Large and very large companies are shifting to RCS vendor networks for going on-line to branches.

- When looking at small and medium-sized firms one sees a sharp drop-off in EDP automation. Only 60% of medium and 30% of small companies use EDP - primarily for installment loan processing.

- Small and medium-sized finance companies are relatively small organizations. Lacking the resources for an in-house EDP organization, they are heavily dependent upon RCS vendors for computer services.

- So far, finance company executives have not felt a great need to use minicomputers for finance applications.

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EXHIBIT VI-5

DISTRIBUTION OF EDP UTILIZATION FOR FINANCE COMPANIES BY SIZE (1978-1984)

FINANCE COMPANY SIZE	IN-HOUSE (%)		COMPUTER SERVICES (%)		NOT AUTOMATED (%)	
	1978	1984	1978	1984	1978	1984
VERY LARGE	72%	65%	28%	35%	-	-
LARGE	64	50	36	50	-	-
MEDIUM	-	10	60	75	40%	15%
SMALL	-	-	30	50	70	50

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- For very large finance companies, the Director of Data Processing orders software products and RCS network services.

- The financial Vice President, Treasurer or Controller orders RCS processing services in large financial companies.

- RCS services are selected by operations Vice Presidents or CEOs in medium-sized financial companies.

- In small firms, the owner, president, or operations manager orders processing services.

3. EXISTING PRODUCTS

- Users are very satisfied with computer services.

  - Most (75%) respondents stated that their present services fulfill all their current requirements.

  - Only 12% stated that present services lack some significant requirement.

- Those few (15%) respondents involved in software were satisfied with the usefulness of the product.

4. NEEDED PRODUCTS

- Sixty percent of respondents stated they had no additional future requirements for computer services.

- Of the remainder, the most often stated future requirement was the need to shift to on-line operations at the branch level.

- Respondents' requested products/services:

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- Branch accounting.

- Customized loan plans as opposed to installment loans.

5. INDUSTRY ISSUES

a. Government

- Interest rate ceilings have restricted finance company growth in consumer lending. Additionally, there has been some shift of the small loan market to credit unions.

- The high prime rate resulting from Federal Reserve monetary policy causes finance companies to go to the open market for funds on commercial paper: a more risky practice.

- The current restrictions on banking outlets induce bank holding companies to acquire finance companies as consumer outlets. These finance company outlets could serve as branches when nationwide banking is allowed.

b. Distributed Data Processing (DDP)

- Finance company executives have little interest in DDP.

- Over 60% of respondents had not considered DDP and were mainly interested in centralized operations.

- Seventeen percent had considered DDP and then rejected it. Another 7% are presently considering ways to move more processing from the central office to branches.

c. Facilities Management (FM)

- Finance companies showed little interest in FM for mainline operations.

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- Executives had some interest in using FM for branch network data gathering and control.

- Over 70%, however, had not considered FM, and 20% had considered FM but rejected the concept due to the small size of their firms.

d. User Site Hardware Systems (USHS)

- Finance company executives had a mixed response to questions on USHS:

  - Fifty-three percent had not considered USHS.

  - Twenty percent were considering a USHS connected to a vendor network.

  - Twenty-seven percent were processing specialized applications using a vendor-supplied turnkey mini system.

- From these responses, it appears that finance company executives are open to the USHS concept, particularly as an adjunct to existing or potential networks.

D. COMPETITIVE ENVIRONMENT

1. COMPETITIVE STRUCTURE

- Finance companies are a specialized market area.

- INPUT estimates that there are less than 50 vendors servicing this market.

- As shown in Exhibit VI-6, there are three types of computer services organizations dealing with the finance company market.

  - Finance company data processing subsidiaries with 27% of the market.

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EXHIBIT VI-6

COMPUTER SERVICES VENDORS' SHARE
OF THE FINANCE COMPANY MARKET
IN 1978

VENDOR TYPE	NUMBER OF VENDORS	NUMBER OF FINANCE COMPANIES SERVICED	PROCESSING REVENUES ($M)	MARKET SHARE (%)
FINANCE COMPANY DATA PROCESSING SUBSIDIARIES	3	350	$12	27%
COMMERCIAL BANKS	30	600	15	33
COMPUTER SERVICES VENDORS	12	220	18	40
TOTAL	45	1,170	$45	100%

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- Commercial banks with 33% of the market.

- Computer services vendors with a 40% market share.

- Action Data Services, a subsidiary of The Service Bureau Company (Control Data Corporation), is the leading computer services vendor.

  - Action Data had 1978 revenues of $9 million and served 100 companies.

  - The firm handles consumer and commercial financing through an on-line system.

  - Action Data's customers include ITT Financial, GE Credit and Ford Credit Corporation.

  - It processes some accounts and performs data collection and transmission to the user host on others.

- Dial Computer Systems Corporation is the largest finance company vendor subsidiary.

  - Dial had 1978 revenues of $8 million and served 50 companies.

  - Dial's on-line system handles consumer financing only.

  - The firm does processing for 40 companies and data transmission and collection for others.

- Data National Division of Eastern Airlines is also prominent in this market.

  - Data National had 1978 revenues of $5 million and serves five large and very large companies.

  - Data National has an on-line system handling consumer finance.

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- The firm does processing and data collection and transmission.

2. VENDOR PERCEPTIONS

- RCS vendors perceived the finance company market to be small, specialized and served by only a few computer services firms.

- Dial Services and Action Data are the two main competitors to any potential entry into this market.

- Small finance companies lack the capital to automate and be an effective market target. Medium-sized firms are only marginal candidates.

- The key to future market potential is at the branch level - an extensive RCS network will be required to facilitate processing.

- Moreover, current finance company systems are highly centralized; they could easily be split up on a distributed basis.

- Batch processing, done by commercial banks and small service bureaus, is a declining mode of service.

E. PRODUCT AND MARKETING ISSUES

1. PRODUCT STRATEGIES

- On-line account data entry and inquiry is the principal computer services requirement of major finance companies.

- On-line interactive processing of transaction data from branches is also needed.

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- Finance companies will require DBMSs for new system development.
- They will need data communications nets to reach branches, nets handling 1200/2400 bps lines.
- Vendors must support both CRT and multiple hard copy terminals.
- Vendors must support an inquiry response time of 2-4 seconds.
- Finance companies will be interested in accounting functions fully integrated with branch operations.
- Finance company executives are interested in separate modules for installment loans and commercial loans.

2. MARKETING STRATEGIES

- Concentrate on services to medium and large finance companies.
- Offer very large firms RCS networks to gather, summarize, and transmit data from branches to the finance company host computer.
- Expand by acquiring commercial bank ACS accounts and by acquiring small service vendors that cannot go to an on-line system for finance company branches.
- Account price services.

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VII COMPUTER SERVICES MARKETS IN SECURITY AND COMMODITY FIRMS

VII COMPUTER SERVICES MARKETS IN SECURITY AND COMMODITY FIRMS

A. SUMMARY AND RECOMMENDATIONS

1. SUMMARY

- There are some 465 U.S. firms dealing in listed securities and commodities and another 1150 firms dealing in the over-the-counter market.

- The industry is characterized by overcapacity. The number of firms is steadily declining through merger and liquidation.

- Very large firms having capitalization greater than $50 million dominate the marketplace. Very large firms, only 5 percent of the total number, hold 70 percent of total capitalization and have 55% of total 1978 revenues of $6.6 billion.

- Seventy percent of the securities industry is centered in New York City.

- Computer services expenditures, $225 million in 1978. will rise only a moderate 12% AAGR to $450 million in 1984. Low growth results from excess in house capacity realized in merger and consolidation, and in the case of Financial Inquiry Services (FIS), from market saturation.

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- FIS is the largest area with 40% of total computer services expenditures but has the lowest growth (8% AAGR).

- Financial Management and Planning Services is the greatest growth area (18% AAGR).

  - On-line order processing is also expected to experience rapid growth after a National Market System is implemented.

- RCS is the dominant mode, constituting 56% of total processing. However, FM is also an important delivery mode, particularly for exchange operations.

- The shift from fixed to negotiated rater in 1975 is still restructuring the market. With the advent of a National Market System, the industry could well consolidate to 100 or less large and very large diversified national firms.

- Although most security firms are automated for FIS only 38% were automated in 1978 for other applications. The portion automated will rise to 6,240 in 1984 as the National Market System is implemented.

- Small and medium-size firms are heavily dependent on other security firms or computer services vendors for computer services.

- Securities executives see some application of DDP for branch FIS operations. They see increased use of DDP as the National Market System evolves.

- Securities executives in very large firms are planning to move RCS financial management and planning services in-house and are looking at the USHS alternative.

- Bunker Ramo with 1978 revenues of $46 million is the largest of three vendors supplying FIS.

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- ADP with $30 million in 1978 securities firm revenues is the leading computer services vendor to Wall Street.

2. RECOMMENDATIONS

- Opportunities are good in the Security and Commodity Firm sector for software products, data base related and other computer services.

- The FIS market, however, is saturated. New entry should be considered through acquisition or joint venture.

- Development of a National Market System will open up new opportunities for FM arrangements for both exchange operation, and electronic security custody and clearance.

- New market instruments, such as term interest rate options, will require sophisticated software products for risk assessment and "what if" analysis.

- Vendors entering the market should concentrate on demonstrating expertise in one area to gain recognition before offering services across the board.

- Marketing efforts should be concentrated in New York City. Additional opportunities exist around the other exchanges.

- Vendors currently in the market should broaden their product offerings to cover all areas. Offering all types of services over the same communication net will result in both user cost savings and increased profit margins.

- Vendors should position themselves to bid and offer services on a national basis.

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B. MARKET ANALYSIS AND FORECAST

1. MARKET STRUCTURE

- There are presently 465 firms in the United States that deal in listed securities and commodities.

- Another 1,150 firms are over-the-counter dealers.

- The number of listed firms is steadily declining: there were 646 firms in 1968, and average decline of 3% per year.

- Total capitalization remains fairly constant at $4.2 billion: as shown in Exhibit VII-1, 70% of this sum is held by 5% of the firms - the very large organizations.

- Total security industry revenues are near $6.6 billion annually. Very large firms have increased their share of this amount from 31% in 1972 to 55% in 1978.

- The very large and large security and commodity firms are growing by acquisition and liquidation of small and medium firms.

- In a market characterized by over capacity, securities firms are actively vying for the consumer dollar.

- The development of a National Market System will accelerate consolidation as regional firms merge to remain competitive.

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EXHIBIT VII-1

MARKET STRUCTURE OF SECURITY AND COMMODITY FIRM SUBSECTOR BY SIZE
IN 1978

SECURITY AND COMMODITY FIRM SIZE	SIZE CAPITAL-IZATION ($)	NUMBER	AAGR (%)	TOTAL CAPITAL-IZATION ($B)	AAGR (%)	SECURITIES REVENUES ($B)	AAGR (%)
VERY LARGE	>$50M	25	6%	$ 2.9	9%	$ 3.6	11%
LARGE	$10-50M	44	3	0.7	6	1.8	3
MEDIUM	$2-10M	124	-	0.5	3	.9	-
SMALL	<$2M	272	-	0.1	-	.3	-
TOTAL		465	-	$ 4.2	6%	$ 6.6	-

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2. MARKET FORECAST

- Computer services expenditures by the securities industry were $225 million in 1978, and, as shown in Exhibit VII-2, will rise only a moderate 12% AAGR to $450 million in 1984.

- This low growth in EDP expenditures is due to:

  - Very large firms are going in-house.

  - Merger and consolidation is leaving excess in-house capacity.

  - Price competition is holding down revenues.

  - For some applications, Financial Inquiry Services (FIS), for example, the market is saturated.

- FIS is the largest application in the securities industry: 40% of computer services expenditures. However, this application is not growing rapidly (an 8% AAGR), and there is heavy competition among vendors for a market share.

- Financial Management and Planning (FMP), however, is an area of much greater growth. The industry expects $60 million to be spent on FMP by 1984 - an AAGR of 18%. Computer services will be used in this application for company analysis, portfolio analysis, industry trends, etc., using financial and economic data bases.

- Order Processing had only $20 million in computer services expenditures in 1978. However, as an on-line interactive application, Order Processing will expand rapidly after a National Market System is implemented.

- As shown in Exhibit VII-3, RCS is the dominant processing mode, again due to the dominance of FIS, the largest application. RCS constitutes 56% of total processing.

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EXHIBIT VII-2

COMPUTER SERVICES MARKET FORECAST FOR BANKING AND FINANCE BY APPLICATION (1978-1984): SECURITY AND COMMODITY FIRM SUBSECTOR

APPLICATION	USER EXPENDITURES			
	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
• FINANCIAL INQUIRY SERVICES	$ 90	$ 97	$ 143	8%
• BACK OFFICE PROCESSING	80	90	167	13
• ORDER PROCESSING	20	24	45	14
• FINANCIAL MANAGEMENT AND PLANNING	35	41	95	18
TOTAL	$ 225	$ 252	$ 450	12%

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EXHIBIT VII-3

COMPUTER SERVICES MARKET FORECAST FOR BANKING AND FINANCE BY SERVICE MODE (1978-1984): SECURITY AND COMMODITY FIRM SUBSECTOR

COMPUTER SERVICE		USER EXPENDITURES			
MODE	TYPE	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
REMOTE COMPUTING SERVICES	GENERAL BUSINESS	$ 6	$ 7	$ 16	18%
	INDUSTRY SPECIALTY	99	110	179	10
	UTILITY	4	4	8	12
	TOTAL	$ 109	$ 121	$ 203	11%
FACILITIES MANAGEMENT	GENERAL BUSINESS	0	-	-	-
	INDUSTRY SPECIALTY	23	28	68	20
	UTILITY	0	-	-	-
	TOTAL	$ 23	$ 28	$ 68	20%
BATCH	GENERAL BUSINESS	10	11	20	12
	INDUSTRY SPECIALTY	50	55	85	9
	UTILITY	4	4	8	12
	TOTAL	$ 64	$ 70	$ 113	10%
TOTAL PROCESSING	GENERAL BUSINESS	16	18	36	14
	INDUSTRY SPECIALTY	172	193	332	12
	UTILITY	8	8	16	12
	TOTAL	$ 196	$ 219	$ 384	12%
SOFTWARE PRODUCTS	SYSTEM	2	2	4	12
	APPLICATION	9	10	18	12
	TOTAL	$ 11	$ 12	$ 22	12%
PROFESSIONAL SERVICES		18	21	44	16
TOTAL		$ 225	$ 252	$ 450	12%

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- Batch (33%) is significant for back office processing and is not expected to markedly decline by 1984.

- Facilities Management (FM) is also an important mode. FM is used for NASDAQ over-the-counter quotations and for securities clearance. FM's importance will increase with National Market Systems operations.

3. INFLUENCING FACTORS

- Major changes are occurring in the securities industry.

- The SEC's shift from fixed to negotiated rates in 1975 began a major restructuring of the market.

- In addition, the securities industry is very cyclical.

- The industry's equity base is narrow, and smaller companies are very volatile.

- Major consolidations are taking place.

- In the area of technology:

  - The first wave was the automation of back office data flow by batch processing.

  - The second wave was automated stock quotation and order entry.

  - The third wave will be the National Market System in which there will be:

    . On-line order trading.

    . Electronic clearing.

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- The end result will likely be an industry composed of less than 100 very large and large diversified national firms.

C. USER ANALYSIS

1. APPLICATIONS

- There are four major EDP applications in the securities industry:
  - Financial inquiry services.
  - Back office processing.
  - Order processing.
  - Financial management and planning.
- For most applications, securities firm size determines the extent of EDP utilization, the extent of the employment of computer services vendors, and the mode of service delivery.
- The major EDP functions accomplished within each application are shown in Exhibit VII-4. For each function, estimates are provided, according to firm size, of:
  - The portion of work performed in-house.
  - The portion of work provided by computer services.
  - The portion of delivery made in the interactive mode.
- For example, Exhibit VII-4 indicates that for on-line inquiry for order processing:

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EXHIBIT VII-4

EDP UTILIZATION FOR SECURITY AND COMMODITY FIRM APPLICATIONS BY SIZE

APPLICATION	APPLICATION FUNCTIONS	SECURITY AND COMMODITY FIRM SIZE											
		VERY LARGE			LARGE			MEDIUM			SMALL		
		HI	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT
FINANCIAL INQUIRY SERVICES	• SECURITIES QUOTATION	–	XXX	XXX	–	XXX	XXX	–	XXX	XXX	–	XXX	XXX
	• USER DATA BASE ACCESS	–	XX	XXX	–	X	XXX	–	X	XXX	–	–	–
	• FINANCIAL DATA BASE ACCESS	–	XX	XXX	–	X	XXX	–	–	–	–	–	–
	• BRANCH MESSAGE PROCESSING	–	XX	XXX	–	X	XXX	–	X	XXX	–	–	–
	• NEWS SERVICES	–	XXX	XXX	–	XXX	XXX	–	X	XX	–	X	XX
BACK OFFICE PROCESSING	• CLIENT ACCOUNT PROCESSING	XXX	X	X	XX	XX	X	–	XX	X	–	X	–
	• COMMISSION AND SALES PROCESSING	XXX	X	X	XX	XX	X	–	XX	X	–	X	–
	• CAGE MANAGEMENT	XX	XX	XX	XX	XX	XX	–	XX	XX	–	X	X
	• CLEARANCE	XX	XX	XX	XX	XX	XX	–	XX	XX	–	XX	XX
ORDER PROCESSING	• ORDER ENTRY	XX	XX	XXX	XX	XX	XX	–	XX	XX	–	X	XX
	• ORDER EXECUTION AND CONFIRMATION	XX	XX	XXX	XX	XX	XX	–	XX	XX	–	X	XX
	• ON-LINE INQUIRY	XX	XX	XXX	XX	XX	XXX	–	X	XXX	–	X	XXX
	• MESSAGE SWITCHING	XX	XX	XXX	XX	XX	XXX	–	–	–	–	–	–
FINANCIAL MANAGEMENT AND PLANNING	• PORTFOLIO ANALYSIS	XX	XX	XXX	X	XX	XXX	X	XX	XXX	–	X	XXX
	• MARKET FORECASTING	X	XXX	XXX	–	XX	XXX	–	–	–	–	–	–
	• ACQUISITION AND MERGER ANALYSIS	X	XXX	XXX	–	XX	XXX	–	X	XXX	–	–	–
	• FINANCIAL INFORMATION SYSTEMS	XXX	X	XXX	XX	XX	XXX	X	XX	XXX	–	X	XXX

– NOT USER
X LESS THAN 25%
XX BETWEEN 25% AND 75%
XXX MORE THAN 75%

IH – IN-HOUSE
CS – COMPUTER SERVICES
INT – INTERACTIVE MODE

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- On-line inquiry is always done in the interactive mode.

- Small firms make little use of on-line inquiry, and when they do they use RCS vendors.

- Large and very large firms split their use (25% to 75%) of on-line inquiry between in-house and vendor-supplied services.

- Securities Quotation is the most important FIS function, comprising 80% of FIS computer services expenditures.

  - In the past several years, FIS services vendors have begun supplying branch communication processors that allow tie-in of the FIS system with the user's in-house system.

  - Branch account managers can review a client's portfolio, send and receive messages, and access additional data bases, such as the Dow Jones News Service.

- Smaller securities firms, on the other hand, depend heavily on either larger securities firms or computer services vendors to process and clear their trades. Many smaller firms do not have automated processing for client's accounts.

- Order processing is shifting increasingly to on-line processing. The development of a National Marketing System will accelerate this process.

- The major portion of FMP is currently done by RCS vendors. Very large firms would be candidates for USHS services in this area.

- Financial and economic data base access will remain a network function.

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2. USE OF COMPUTER SERVICES

- The level of automation in the securities industry depends to a large extent on the application and on firm size.

- As shown in Exhibit VII-5, all but 20% of small firms were automated for FIS in 1978. Less than 5% will remain unautomated for FIS in 1984.

- For the other three applications, 38% of firms were automated in 1978, and this is expected rise to 62% in 1984 as the National Market System becomes effective.

- Small and medium-sized firms are heavily dependent upon other securities firms or computer vendors for computer services.

- Minicomputers are beginning to find their way into medium-sized securities and commodities firms.

- The Operations Vice President of very large and large securities firms orders FIS, back office, and order entry computer services.

- Vice Presidents of Research, chief economists, and Vice Presidents of Finance of very large and large securities firms are all involved in ordering financial management and planning services.

- In smaller securities firms, a senior partner, or the chief operating officer is the decision maker for computer services.

3. EXISTING PRODUCTS

- Respondents generally did not feel that computer services vendors, or their own DP departments, met their requirements.

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EXHIBIT VII-5

DISTRIBUTION OF EDP UTILIZATION FOR SECURITY AND COMMODITY FIRMS BY SIZE (1978-1984):

FIRM SIZE	IN-HOUSE (%)				COMPUTER SERVICES (%)				NOT AUTOMATED (%)			
	1978		1984		1978		1984		1978		1984	
	FIS*	ALL OTHER	FIS*	ALL OTHER	FIS*	ALL OTHER	FIS*	ALL OTHER	FIS*	ALL OTHER	FIS*	ALL OTHER
VERY LARGE	0%	70%	0%	70%	100%	30%	100%	30%	0%	0%	0%	0%
LARGE	0	50	0	60	100	50	100	40	0	0	0	0
MEDIUM	0	5	0	15	100	50	100	65	0	45	0	20
SMALL	0	0	0	0	80	15	95	40	20	85	5	60

*FIS = FINANCIAL INQUIRY SERVICES

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- Their main complaint seemed to be that work was often late.

- However, respondents felt that some progress was being made in clearing orders.

- Securities firm executives were in favor of a securities depository concept.

- Most respondents with in-house systems developed their own programs: there are few software products available for back office operations.

- Securities firm executives liked the idea of on-line order entry, order matching, and inquiry services.

- In general, respondents felt FMP services offered by RCS vendors were good.

4. NEEDED PRODUCTS

- Most respondents did not take a position on needed products or services from computer services vendors.

- When stating a preference, respondents most consistently stated the need for better security analysis systems. They would like to see:

  - Securities portfolio analysis.

  - Industry performance analysis.

  - Company analysis.

- Securities firm executives would like to see better data access through DBMS.

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- Respondents are looking for minicomputer USHS or turnkey systems to reduce RCS expenditures and to provide more flexibility for securities analysis.

5. INDUSTRY ISSUES

a. Government

- There is a trend for increased deregulation of the securities industry by the SEC and Congress. Recently enacted regulations have allowed:
  - Negotiated commission rates.
  - Block trading.
  - Over-the-counter sales of listed securities.
- The SEC is promoting a National Market System with access to and trading on all exchanges nationwide.
- These trends will accelerate merger and consolidation of securities and commodities firms into fewer and larger entities.

b. Distributed Data Processing (DDP)

- Securities firm respondents see little need for DDP. Many, in fact, are just completing information system tie-ins to central hosts.
- Securities firms presently need some distributed processing for the FIS application to accommodate inquiry and branch processing functions with branch mini communication processors.
- The development of the National Market System should increase the use of DDP for integrating security and commodity firms' applications.

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c. Facilities Management (FM)

- Respondents perceived little need for FM. However, very large firms have excess capacity which could be utilized under FM arrangements.

- The real opportunities for FM are with the stock exchanges and securities custody and clearance units. Bunker Ramo, for example, has the NASDAQ contract.

- FM arrangements may also be possible under the National Market System.

d. User Site Hardware Services (USHS)

- Securities firm executives had little exposure to USHS.

- Very large companies, however, would like to move RCS FMPS capability in-house, and an alternative approach might be a USHS minicomputer.

- Large and very large firms are looking for better systems for portfolio analysis and performance, and they want more alternative outcome analysis capability. USHS possibilities might be in this direction.

D. COMPETITIVE ENVIRONMENT

1. COMPETITIVE STRUCTURE

- Nearly 40 vendors are supplying computer services to securities and commodities firms. These vendors fall into three main applicational areas, as shown in Exhibit VII-6. Most vendors specialize in one area such as Quotron Systems in Financial Inquiry Services. Several provide services in two areas, such as ADP and SBC, but no one vendor yet supports total data systems requirements of security and commodity firms.

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EXHIBIT VII-6

COMPUTER SERVICES VENDORS' SHARE OF THE
SECURITY AND COMMODITY FIRM MARKET
IN 1978

APPLICATION / VENDOR	VENDORS	USERS	REVENUES ($M)	MARKET SHARE (%)
• FINANCIAL INQUIRY SERVICE				
- LISTED STOCK QUOTATION				
• QUOTRON	1	190	$ 29	34%
• BUNKER RAMO	1	210	32	38
• GTE/IS	1	65	10	12
- NASDAQ				
• BUNKER RAMO	1	1,150	14	16
SUB-TOTAL	4	1,615	$ 85	100%
• BACK OFFICE AND ORDER PROCESSING				
- SECURITIES FIRMS	5	60	25	30%
- RCS VENDORS				
• ADP	1	40	20	24
• BRADFORD	1	20	11	13
• SBC	1	15	6	8
• OTHERS	15	40	21	25
SUB-TOTAL	23	175	$ 83	100%
• FINANCIAL MANAGEMENT AND PLANNING				
- ADP	1	80	10	36%
- IDC	1	50	7	25
- OTHERS (SBC, GEIS, ETC.)	8	92	11	39
SUB-TOTAL	10	222	$ 28	100%
TOTAL	-	-	$ 196	100%

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- The market for Financial Inquiry Services is served by just three vendors. Bunker Ramo, with 54% of the market, is the largest single vendor. However, Quotron Systems is rapidly moving to become the industry FIS leader primarily at the expense of GTE/IS.

- ADP has concentrated efforts in serving Wall Street firms. With 1978 revenues of $30 million for back office, order processing, and for financial management and planning, ADP is considered the leading vendor in this market segment.

- Bradford National, with $11 million in revenues for security firms, specializes in back office processing and particularly in securities clearance.

- Interactive Data Corporation with revenues of $7 million specializes in providing economic and financial data base related services to securities firms.

2. VENDOR PERCEPTIONS

- Vendors perceive that securities and commodity firms are in constant need of a wide variety of computer services.

- By providing responsive solutions to ever changing problems and issues, RCS vendors have been able to increase revenues in the face of losing client base through firm merger.

- Vendors perceive the need to negotiate national contracts for computer services.

- ADP has decided to take the USHS route to counter the trend for securities firms going in-house.

- Vendors feel that professional services are a key ingredient for selling RCS revenues to securities firms.

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- Vendors perceive that the development of a National Market System will open new opportunities for offering RCS services through available vendor networks.

E. PRODUCT AND MARKETING ISSUES

1. PRODUCT STRATEGIES

- Product strategies vary according to the application areas offered.

- Financial inquiry services require:

  - CRT terminals - small desk top for limited inquiry; large desk top for comprehensive inquiry; and large monitor unit.

  - Split screens permitting two brokers to use each terminal.

  - Response times from 0.3 to 2.0 seconds.

  - Minimum 1200 character clear display.

  - Real-time dedicated data system.

  - System ability to handle 50,000 terminals.

  - Branch communications processor with 96K storage.

  - National network and leased lines having 9600 bps capability.

  - Data base containing current plus 52 weeks prices on all stocks, bonds, warrants, options, commodities, and money market instruments on major exchanges.

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- Software distributed between host and branch communications processors for data base access, combining data series, and display in response to commands from data inquiry terminals.

- Order processing and clearance.

  - Data network interconnecting branch offices and exchanges.

  - CRT and hard copy terminals for order entry and inquiry.

  - Interface with securities depositor and clearance units.

  - Direct access to trading floors.

- Financial management and planning requires:

  - Wide carriage (132 character) hard copy 120 cps terminals.

  - Wide screen CRT terminals with 3000 character display.

  - Response times of:

APPLICATION	RESPONSE TIME
Data entry	"No keyboard delay"
Data services request	1 second
Analysis (correlation, regression)	5 seconds
Forecasting	2-4 minutes
Financial reports	10-20 minutes

  - Financial management and planning software (see INPUT's Industry Report #18, "Financial Management and Planning Services and Software Markets").

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- Financial and economic data bases (see INPUT's Industry Report #5, "Remote Computing Services Markets for Economic and Financial Data Bases").

2. MARKETING STRATEGIES

- Marketing strategies vary according to application areas.

- Strategies for financial inquiry services are:

  - Marketing personnel well versed in money market instruments and with an understanding of financial market operations.

  - A highly reliable terminal and national communications network supported by a responsive field service organization.

  - The ability to bid and negotiate single contracts for nationwide services.

  - Flexible branch communications system supported by professional services to assist in interfacing with clients' in-house system.

- Strategies for back office and order processing services are:

  - Marketing and support staff located in New York City.

  - Support staff on-site with client.

  - Support staff at each major exchange.

  - Servicing arrangements with regional depository companies and clearance units.

- Strategies for financial management and planning are:

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- Development of specific application packages targeted to security firms needs (i.e., portfolio analysis, fund performance analysis).

- Offer services operating on user site hardware system.

- Offer a wide choice of financial and economic data bases.

- Powerful and easy to use modeling, DBMS, and report writing software.

- Professional services by MBA level support staff.

- Availability of Ph.D. consulting business economists.

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VIII COMPUTER SERVICES MARKETS IN MORTGAGE BANKING COMPANIES

VIII COMPUTER SERVICES MARKETS IN MORTGAGE BANKING COMPANIES

A. SUMMARY AND RECOMMENDATIONS

1. SUMMARY

- Mortgage banking companies are distinguished from loan departments of commercial banks. However, many mortgage banking companies are subsidiaries of bank and other financial holding companies.

- Mortgage bankers specialize in government (FHA, VA, HUD) sponsored housing programs. With the advent of mortgage insurance, mortgages bankers are expanding their operations into the conventional residential mortgage market.

- Of 900 mortgage banking companies in 1978, 440 (49%) are automated. Nearly 200 or 22% use computer services - mostly those provided by a computer services vendor. Nearly 70% will automate by 1984.

- Mortgage bankers must rely on volume as opposed to price as the primary marketing variable. The industry is tending to develop large companies maintaining large servicing portfolios where economies of scale are effective. The number of very large companies is growing at an AAGR of 14%, whereas the number of small companies is declining.

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- Respondents reported little interest in Distributed Data Processing (DDP), Facilities Management (FM), or User Site Hardware Systems (USHS).

- RCS vendors are offering user site hardware systems for on-line data entry and inquiry, and for remote report and voucher preparation.

- Two types of vendors serve the mortgage banking market: commercial banks and computer services vendors, which have a 63% market share.

- Expenditures for computer services (35% of total 1978 EDP expenditures) were $22 million in 1978, rising to $57 million in 1984 - an AAGR of 17%.

- Mortgage banking companies use EDP for:

  - Mortgage servicing.

  - Mortgage origination.

  - Construction loan management.

  - General accounting.

- Mortgage servicing accounts for 77% of total computer services expenditures.

- Remote batch is the primary mode of service delivery using 75% of total computer processing expenditures.

- Batch processing will continue to be used by smaller companies.

- Professional services, growing at an AAGR of 16% is needed to make program modifications required by frequent changes in government programs and industry practices.

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- Very large and large-size companies are more highly automated than smaller companies, particularly in the areas of mortgage origination and construction loan management.

2. RECOMMENDATIONS

- Mortgage banking is a small and specialized market. Entry by new vendors should be approached with caution.

- Strategies recommended for computer services entry and expansion are:

  - Acquisition of commercial servicing vendors.

  - Joint venture development with a very large mortgage banking company.

  - Purchase of processing accounts from automated customer services departments of commercial banks.

- Create a special group in marketing to service financial industries, including banks and mortgage bankers.

  - Staff the group with selected personnel with mortgage banking operation experience.

  - Provide professional services for definition and programming of specialized user requirements.

- Mortgage banking services should be account priced, both with respect to basic services and incrementally for additional features.

- Develop highly modularized mortgage banking systems using DBMS software. Be prepared to tailor to users' requirements by creation of additional modules.

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- Offer user site hardware systems for at least data entry, inquiry, and output production.

- Offer a total service, hardware (minicomputer or micro intelligent terminals), software, technical support, and system maintenance.

B. MARKET ANALYSIS AND FORECAST

1. MARKET STRUCTURE

- Mortgage bankers are characterized as companies that both originate and service of mortgage portfolios. They originate mortgages on commitments from insurance companies, pension fund manager, or government agencies, or less often for warehousing and later sale. Mortgage bankers service mortgage portfolios they originate or purchase in the secondary mortgage market.

- The mortgage banking industry is an outgrowth of federal programs to foster moderate and low income housing, first under VA and FHA programs, but later under a multiplicity of NHA and HUD-subsidized and insured programs.

- Mortgage banking industry growth was enhanced by the evolvement of a secondary mortgage market whereby, first, federally sponsored FANNYMAE and then FREDYMAC Corporations issued mortgage-backed securities to buy and sell portfolios of mortgage banking company - originated mortgages.

- Within the past five years guarantee insurance has become available for convential home mortgages, allowing mortgage bankers to further diversify their portfolio holdings.

- As shown in Exhibit VIII-1, there are some 900 mortgage banking companies in the marketplace. Their number has been slowly growing (2% AAGR), very large ones at the greatest rate (14% AAGR), through both market expansion

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EXHIBIT VIII-1

MARKET STRUCTURE OF MORTGAGE BANKING COMPANY
SUB-SECTOR BY SIZE IN 1978

MORTGAGE COMPANY SIZE	SIZE OF SERVICING PORTFOLIO	NUMBER OF FIRMS	AAGR (%)	VALUE OF MORTGAGES SERVICED ($B)	AAGR (%)	NUMBER OF MORTGAGES SERVICED (M)	AAGR (%)
VERY LARGE	>$1.2B	29	14%	$ 66	16%	2.4	9
LARGE	$400M-1.2B	77	12	63	12	2.5	6
MEDIUM	$100M-400M	181	3	42	13	1.5	7
SMALL	<$100M	613	-	23	6	0.9	-
TOTAL		900	2%	$194	12%	7.3	6%

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and active programs of merger and acquisition. Inflationary labor costs constrained by government regulated origination and servicing fees require economies of large-scale operation to maintain profitability.

- Very large and large companies, while only 12% in number, have 66% of the mortgage servicing portfolio asset value and accounts.

- Very large companies are expanding their loan portfolios at above industry growth rate as they capture market share from smaller mortgage banking companies through acquisition and merger.

- An increasing number of mortgage banking companies have been acquired by bank holding companies and by financial companies, which both aid in obtaining commitment funds and provide data processing services, at times with less than an adequate understanding of the specialized nature of mortgage banking applications.

2. MARKET FORECAST

- Mortgage banking is a highly specialized market area. Expenditures for EDP services in mortgage banking are modest, rising from $22 million in 1978 to $57 million in 1984, an AAGR of 17% as shown in Exhibit VIII-2.

- Computer services revenues are only 35% of total 1978 EDP expenditures of nearly $63 million. The portion will rise to 44% by 1984 as mortgage bankers turn to computer services vendors that offer both comprehensive RCS services and user-site hardware systems.

- Mortgage servicing is by far the major application, utilizing 77% of total 1978 computer services expenditures. The portion devoted to mortgage servicing will drop to 73% by 1984 as large and very large companies expand in the conventional mortgage market through construction lending and loan packaging.

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EXHIBIT VIII-2

COMPUTER SERVICES MARKET FORECAST FOR BANKING AND FINANCE BY APPLICATION (1978-1984): MORTGAGE BANK COMPANY SUBSECTOR

APPLICATION	USER EXPENDITURES			
	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
MORTGAGE SERVICING	$ 17	$ 20	$ 42	16%
MORTGAGE ORIGINATION MANAGEMENT	2	2	7	23
CONSTRUCTION LOAN MANAGEMENT	1	1	3	20
GENERAL ACCOUNTING	2	2	5	17
TOTAL	$ 22	$ 25	$ 57	17%

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- As shown in Exhibit VIII-3, remote batch RCS is the dominate (75%) mode of delivery. Interactive services are increasing for on-line data entry and inquiry.

- The market is too small for direct FM arrangements.

- Batch processing will continue to be used for smaller companies until a viable RCS evolves for mortage banking companies with less than 8,000 accounts.

- Mortgage banking companies use general business services for general accounting and for portfolio analysis.

- Constant change in government regulation and industry practices requires program modifications resulting in a 16% AAGR for professional services.

3. INFLUENCING FACTORS

- The mortgage banking industry runs cyclically with the housing industry. The mortgage banking industry expands markets and services in business recovery and shakes out marginal firms in business decline and recession.

- Mortgage banking was established as an industry in a time where housing markets were rapidly expanding and money markets, with government support, were ample to finance demand.

- Mortgage bankers focused on specialized mortgage markets created by government FHA and VA housing programs. Mortgage bankers became experts in the paperwork required to originate and then service federally insured mortgages.

- As interest rates rose in money markets, government sponsored corporations were established in order to provide liquidity in mortgage markets through the issuance of securities backed by mortgages, which were federally insured to reduce risk.

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EXHIBIT VIII-3

COMPUTER SERVICES MARKET FORECAST FOR BANKING AND FINANCE BY SERVICE MODE (1978-1984): MORTGAGE BANKING COMPANY SUBSECTOR

COMPUTER SERVICE		USER EXPENDITURES			
MODE	TYPE	1978 ($M)	1979 ($M)	1984 ($M)	AAGR (%)
REMOTE COMPUTING SERVICES	GENERAL BUSINESS	$ 4	$ 5	$ 9	14%
	INDUSTRY SPECIALTY	8	10	25	21
	UTILITY	-	-	-	-
	TOTAL	$ 12	$ 15	$ 34	19%
FACILITIES MANAGEMENT	GENERAL BUSINESS				
	INDUSTRY SPECIALTY				
	UTILITY				
	TOTAL	-	-	-	-
BATCH	GENERAL BUSINESS	1	1	2	8
	INDUSTRY SPECIALTY	3	3	7	15
	UTILITY	-			
	TOTAL	$ 4	$ 4	$ 9	14%
TOTAL PROCESSING	GENERAL BUSINESS	5	6	11	12
	INDUSTRY SPECIALTY	11	13	32	20
	UTILITY				
	TOTAL	$ 16	$ 19	$ 43	18%
SOFTWARE PRODUCTS	SYSTEM	1	1	2	13
	APPLICA-TION	3	3	7	15
	TOTAL	$ 4	$ 4	$ 9	14%
PROFESSIONAL SERVICES		2	2	5	16
TOTAL		$ 22	$ 25	$ 57	17%

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- The last business recession found mortgage bankers holding large portfolios of mortgages with interest rates well below market rates as well as servicing portfolios for fees well below costs. Only the strongest companies survived; others were forced to merge or liquidate.

- Development of the secondary mortgage market and particularly mortgage guarantee insurance has helped reduce risk and bring some stability in the mortgage banking industry. However, inflationary pressures where major servicing is with government-sponsored mortgages having fixed originating and servicing fees threaten mortgage company viability.

- Over the past five years, mortgage bankers are diversifying into the conventional mortgage marketplace aided by mortgage backed guarantee insurance, which permits sale of packaged conventional mortgages in the secondary market. Very large mortgage banking companies have even been able to raise capital by issuing securities backed by insured mortgages.

- Continued growth of the mortgage banking industry depends on both government housing policy and market innovation in mortgage market instruments.

- Ability to provide complex and even changing data systems to mortgage bankers centers on specialization, whereby system development and enhancement costs are shared by many users.

C. USER ANALYSIS

1. APPLICATIONS

- There are four major applications using EDP for mortgage banking:

  - Mortgage servicing.

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- Mortgage origination.

- Construction loan management.

- General accounting.

- Mortgage company size, as shown in Exhibit VIII-4, frequently determines the extent of EDP utilization, the mode of delivery, and the extent of employment of computer services vendors.

- The major EDP functions accomplished within each of the four major applications are also shown in Exhibit VIII-4. For each function, estimates are provided by mortgage company size of the portion of EDP function accomplished in-house, by computer services vendors and by interactive processing.

  - For example, Exhibit VIII-4 shows that small size mortgage banking companies are not likely to be involved in automation of construction loans. Less than 25% of medium size firms are so involved using in-house systems. When they do, they use batch services to accomplish the application. Large mortgage banking companies are marginally involved in automating construction lending.

  - Less than 25% use in-house and computer services vendors, and when they do less than 25% of the time they use remote batch processing to accomplish the application.

  - Between 25% and 75% of very large companies do construction loan management in-house. Less than 25% use computer services vendors.

  - Between 25% and 75% of large companies do construction loan management in the remote batch mode.

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EXHIBIT VIII-4

EDP UTILIZATION FOR MORTGAGE BANKING COMPANY APPLICATIONS BY SIZE

APPLICATION	APPLICATION FUNCTIONS	MORTGAGE BANKER SIZE											
		VERY LARGE			LARGE			MEDIUM			SMALL		
		IH	CS	RB	IH	CS	RB	IH	CS	RB	HI	CS	RB
MORTGAGE SERVICING	• LOAN ADMINISTRATION	XXX	X	XX	XXX	X	X	X	X	X	X	X	X
	• INVESTOR ACCOUNTING	XXX	X	XX	XXX	X	XX	XX	XX	X	X	X	X
	• INVESTOR AND GOVERNMENT REPORTING	XXX	X	XX	XXX	X	XX	XX	XX	X	X	X	X
	• CUSTOMER SERVICES	XXX	X	XX	XXX	X	X	X	X	X	X	X	X
MORTGAGE ORIGINATION	• PRODUCTION	X	X	X	X	X	X	–	–	–	–	–	–
	• INVENTORY CONTROL	XX	X	XX	XX	X	XX	X	X	–	–	X	–
	• MARKETING	X	X	X	X	X	X	–	–	–	–		–
	• WAREHOUSING	XX	X	XX	XX	X	X	X	X	–	–	X	–
CONSTRUCTION LOAN MANAGEMENT	• LOAN ORIGINATION	XX	X	XX	XX	X	X	–	–	–	–	–	–
	• FUNDS MANAGEMENT	XX	X	XX	XX	X	X	–	–	–	–	–	–
	• LOAN MANAGEMENT	XX	X	XX	XX	X	X	–	–	–	–	–	–
GENERAL ACCOUNTING	• GENERAL LEDGER	XXX	X	XX	XXX	X	XX	X	XX	X	X	XX	X
	• INSURANCE	XXX	X	XX	XXX	X	XX	X	XX	X	X	XX	X

– NOT USED
X LESS THAN 25%
XX BETWEEN 25 AND 75%
XXX GREATER THAN 75%

IH – IN-HOUSE
CS – COMPUTER SERVICES VENDOR
RB – REMOTE BATCH

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- Mortgage loan administration provides reports to help portfolio analysis and management and monitor servicing operations.

- Investor accounting handles incoming payments and transfer to custodial accounts. Daily processing of funds to client corporate accounts is automatic. New loans are recorded in the data base.

- Investor reporting includes all FHA and GNMA mortgage backed certificate reports and check remittances.

- Customer services includes escrow analysis, insurance, property taxes, FHA mortgage insurance, payoffs, assumptions, and foreclosures.

- Mortgage origination production covers loan origination volume and profitability analysis.

- Inventory control matches loan applications with commitments and tracks loans to closing.

- Marketing control assures closed loans are assigned for best profit potential to the appropriate loan pool.

- Warehousing keeps track of loans held against client lines of bank credit for servicing prior to package completion.

- Construction loan management loan origination establishes the construction loan and the related construction plan in the data base.

- Funds management provides funds control, interest rate determination, cash flow, portfolio earnings and loan yields, and loan participant accounting.

- Loan management provides management information and status and loan participant reports.

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- Small mortgage companies are serviced primarily in the batch mode. They are not large enough to be in construction lending. Mortgage origination is seldom automated.

- Construction loan management is a recent application in mortgage banking. Very large mortgage banking companies are the most heavily involved. Some 20% of their servicing portfolio are now conventional loans, many resulting from take out financing packaged with construction loan commitment.

2. USE OF COMPUTER SERVICES

- Just less than half (49%) of all mortgage banking companies were automated in 1978. The portion will increase to 70% by 1984.

- Exhibit VIII-5 indicates that all very large and large mortgage banking firms are automated in most areas.

- Only 30% of small size mortgage banking companies are automated at all. Those that are automated use this capability for only portions of mortgage servicing and general accounting. Firms servicing less than 5,000 accounts are marginal candidates for automation.

- Only 25% of EDP processing is currently done by computer services vendors. Many mortgage banking companies are subsidiaries of bank holding companies or financial conglomerates and are captive to corporate data centers.

- The use of minicomputers with turnkey systems will induce some medium and large mortgage banking companies to go in-house.

- For very large and some large-size mortgage banking companies, the vice president of mortgage servicing is the key person in deciding on computer products and services.

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EXHIBIT VIII-5

DISTRIBUTION OF EDP UTILIZATION FOR MORTGAGE BANKING COMPANIES BY COMPANY SIZE 1978-1984

MORTGAGE BANKER SIZE	IN-HOUSE		COMPUTER SERVICES (%)		NOT AUTOMATED (%)	
	1978	1984	1978	1984	1978	1984
VERY LARGE	80%	70%	20%	30%	0%	0%
LARGE	70	60	30	40	0	0
MEDIUM	60	68	25	30	15	2
SMALL	10	10	20	40	70	50

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- Vice presidents of finance and accounting in most large and medium size mortgage banking companies are the key contact.

- For small-size mortgage banking firms, direct contact with the president is necessary to sell automation using computer services vendors.

3. EXISTING PRODUCTS

- Respondents were generally satisfied with software products. Seventy-five percent felt that the software products they purchased either fulfilled all or met most of their requirements.

- Some respondents commented that software maintenance costs were high. Others reported that they had to make significant modifications to the packages to mesh with their operations.

- Respondents were less satisfied with computer services vendors. Nearly 40% of respondents using outside services felt that they either had serious difficulties or the system lacked significant features.

- Respondents wanted both software products and computer services vendors to be more responsive in incorporating revisions resulting from changes in federal regulations and in industry practices.

4. NEEDED PRODUCTS

- Respondents assessments varied widely on requirements for future products.

- Nearly 60% of respondents either had not considered or had no defined future requirements.

- Respondents were looking for products and services for:

  - Mortgage inventory control.

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- General ledger.

- Accounts payable.

- Construction lending.

- Respondents were planning to implement on-line systems for data entry and master file inquiry.

- Several respondents were considering using turnkey minicomputer systems for one or more of their major applications.

5. INDUSTRY ISSUES

a. Government

- Mortgage bankers are still heavily dependent on government housing policy to provide industy demand. Recent legislation and regulation has helped spur mortgage banking activity.

- Increase in FHA loan limits.

- Decrease in FHA down payment requirements.

- Expansion of HUD Section 8 and other subsidized housing programs.

- Inclusion of selected conventional mortgages in GNMA pools.

- Increase in GNMA mortgage-backed certificates.

- High interest rate policy exercised by the Federal Reserve seriously erodes mortgage bankers origination commitments while increasing origination and servicing costs.

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- Origination costs exceed fees in all size mortgage banking firms. Origination fees from the consumer set by law are politically unpopular to change.

- Servicing fees for government programs are regulated, lagging the economy.

- Mortgage bankers must rely on volume as opposed to price as the primary marketing variable. Hence, the industry tends to develop large companies maintaining large servicing portfolios where economies of scale are effective.

b. Distributed Data Processing (DDP)

- Applications for distributed data processing were for on-line data entry and inquiry and for remote report preparation.

- Over 50% of respondents had not considered DDP as applicable to their operation.

- Nearly 30% of respondents reported they would be considering DDP in the next two to five years for:

  - Branch operations.

  - Data concentration.

  - Data entry and inquiry.

- Respondents had implemented DDP in rudimentary form for:

  - On-line data entry.

  - Inquiry.

  - Remote voucher and report preparation.

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- Mortgage origination.

c. Facilities Management (FM)

- Respondents showed little interest in FM arrangements. Over 75% had not even considered FM, a few very large size companies (10%) had considered and rejected FM, and the remainder, small companies, were open to any arrangements that would solve their DP problems.

d. User Site Hardware Services (USHS)

- Respondents had little exposure to vendor-supplied user site hardware systems. Seventy-five percent had not ever considered USHS.

- Some respondents were considering vendor-supplied turnkey mini systems for one or more major applications.

D. COMPETITIVE ENVIRONMENT

I. COMPETITIVE STRUCTURE

- Mortgage banking is a specialized market area. The number of vendors with the specific technical expertise to offer effective software products or computer services is limited. INPUT estimates that there are no more than 60 vendors offering software products and processing services.

- There are two types of vendors: commercial banks and computer services vendors. As shown in Exhibit VIII-6, commercial computer services vendors with 1978 revenues of $10 million have 63% of the current market. Commercial vendor share is increasing due to concentration of specialization for product development and support.

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EXHIBIT VIII-6

COMPUTER SERVICES VENDORS' SHARE OF THE MORTGAGE BANKING COMPANY MARKET IN 1978

VENDOR TYPE	NUMBER OF VENDORS	NUMBER OF MORTGAGE BANKERS	PROCESSING REVENUES ($M)	MARKET SHARE (%)
COMMERCIAL BANKS	45	110	$ 6	37%
COMPUTER SERVICES VENDORS	15	90	10	63
TOTAL	60	200	$ 16	100%

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- Computer Power Inc. (CPI) is the leading vendor of RCS services to mortgage bankers. With 1978 revenues of $8 million, $5 million of which is for RCS services. CPI processes for over 60 mortgage banking companies, mostly very large and large companies servicing over two million mortgage loans.

- CPI's system processes in a remote batch mode. On-line data entry, master file inquiry, and remote voucher and report printing is accomplished using Raytheon PTS 1200 on-site minicomputer systems.

- CPI offers a total service covering origination, servicing, construction, and general accounting.

- CPI also offers its software package for IBM 370 installation in very large-size mortgage banking companies:

  - Mortgage Servicing Package - $240,000 (OS version)
  - Loan Inventory Control Package - $ 30,000 (OS version)
  - Construction Loan Management Package - $ 25,000 (OS version)
  - General Accounting Package - $ 10,000

- Data Communications Corporation (DCC) offers a mortgage origination and loan servicing system either as a software product or as a turnkey system on a Data General S/250 minicomputer. Additional modules for general accounting are also available. The software leases for $75,000, typical hardware for a 8,000 mortgage account size company is $140,000, with $20,000 installation and conversion.

- American Automated Systems offers mortgage loan processing to mortgage banking companies, servicing an aggregate of 120,000 accounts.

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- Data Link Systems (DLS) offers on-line mortgage servicing, specializing in services to small to medium-size mortgage bankers. DLS currently services 55,000 accounts.

- Florida Software Services Inc. supplies software products to medium to large mortgage banking companies for mortgage loan processing.

2. VENDOR PERCEPTIONS

- Vendors perceive the mortgage banking industry as a specialized area requiring a base of specific expertise in order to successfully offer a viable range of computer services.

- Until recently, vendors targeted products and services to large and very large mortgage banking firms. Economic solutions for servicing small size firms are still evolving.

- Vendors have recently recognized the need for on-line inquiry of master file information. They are aware that an eventual shift to DBMS systems will be required, allowing on-line data entry of file additions and changes.

- Vendors believe that by centralizing system development and software changes, they can both reduce cost and offer a more timely and effective product in the marketplace.

E. PRODUCT AND MARKETING ISSUES

1. PRODUCT STRATEGIES

- Remote batch processing is still the most economic and timely method of processing transactions against mortgage origination and servicing files.

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- New systems should be developed that use DBMS to enable on-line inquiry and data entry of mortgage record information.

- The systems should be highly modularized. Each application should be composed of modules that users can select to meet their particular requirements. The design should be such that entry points are easily accessable for code tailored to meet additional requirements.

- The user should be offered a total system, that is, the hardware (minicomputer or microprocessor-driven intelligent terminals), the software, technical support and system maintenance.

- An interactive program training methodology should be incorporated in the system design such that mortgage banking personnel can educate and re-educate themselves in an effective manner.

- Both multiple hard copy and CRT terminals are required: CRT terminals for inquiry by large and very large mortgage companies and hard copy terminals for smaller size companies.

- High speed printers (300-900 lpm) are required for larger companies.

- A reliable and economic leased line communications network with line speeds between 2400-9600 bps is needed for inquiry and remote batch data transmission.

- Inquiry response time between three to six seconds appears adequate.

- A forms design and printing service is required for check and voucher preparation.

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2. MARKETING STRATEGIES

- Successful penetration in mortgage banking requires a high degree of technical expertise in all areas of mortgage origination and mortgage servicing.

- Marketing personnel must be able to deal with mortgage bankers in their terms rather than in computer jargon.

- Statutory and regulatory issues must be tracked to insure that changes are reflected in both the information data base and processing software.

- Continued communication on systems problems and product improvement between users and vendors is necessary.

  - Users groups should be promoted.

  - An annual meeting pays high dividends.

- An effective demonstration program is required. The demonstration is effective both at MBA conventions and at users' sites.

- Mortgage banking systems (MBS) should be marketed in a highly modular fashion both with regard to functions accomplished and to pricing.

- MBS should be account priced. Base price should be charged for the mortgage servicing subsystem with incremental pricing on an account basis for additional features such as participant accounting, construction loans origination, etc.

- Not enough can be said for fully supporting the user during conversion. Continuous and thorough training systems should be planned. Conversion of mortgage records should be offered on a fee per account basis.

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APPENDIX A: STANDARD INDUSTRIAL CLASSIFICATION (SIC) INDUSTRIES IN BANKING AND FINANCE SUBSECTORS

APPENDIX A

STANDARD INDUSTRIAL CLASSIFICATION (SIC) INDUSTRIES INCLUDED IN BANKING AND FINANCE SUBSECTORS

STANDARD INDUSTRIAL CLASSIFICATION			FINANCE AND BANKING SUBSECTORS						
GROUP NUMBER	INDUSTRY NUMBER	INDUSTRY	COMMERCIAL BANK	SAVINGS AND LOAN	CREDIT UNION	FINANCE COMPANY	SECURITY FIRM	MORTGAGE BANKING	OTHER
601	6011	FEDERAL RESERVE BANKS	X						
602	6022-6028	COMMERCIAL AND STOCK SAVINGS BANKS	X						
603	6032-6034	MUTUAL SAVINGS BANKS	X						
604	6042-6044	TRUST COMPANIES NOT ENGAGED IN DEPOSIT BANKING							X
605	6052-6054	ESTABLISHMENTS PERFORMING FUNCTIONS CLOSELY RELATED TO BANKING							X
	6055	CLEARING ASSOCIATIONS	X						
	6056-6059	OTHER CLOSELY RELATED TO BANKING							
611	6112-6113	REDISCOUNT INSTITUTIONS FOR CREDIT AGENCIES OTHER THAN BANKS							X

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STANDARD INDUSTRIAL CLASSIFICATION (SIC) INDUSTRIES INCLUDED IN BANKING AND FINANCE SUBSECTORS

STANDARD INDUSTRIAL CLASSIFICATION			FINANCE AND BANKING SUBSECTORS						
GROUP NUMBER	INDUSTRY NUMBER	INDUSTRY	COMMERCIAL BANK	SAVINGS AND LOAN	CREDIT UNION	FINANCE COMPANY	SECURITY FIRM	MORTGAGE BANKING	OTHER
612	6122-6125	SAVINGS AND LOAN ASSOCIATIONS		X					
613	6131	AGRICULTURAL CREDIT INSTITUTIONS							X
614		PERSONAL CREDIT INSTITUTIONS							
	6142-6143	CREDIT UNIONS			X				
	6144-6149	PERSONAL FINANCE COMPANIES				X			
615	6153-6159	BUSINESS CREDIT INSTITUTIONS				X			
616		MORTGAGE BANKERS AND BROKERS							
	6162	MORTGAGE BANKERS						X	
	6163	LOAN BROKERS							X
621	6211	SECURITY BROKERS AND DEALERS					X		

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APPENDIX A (CONT'D)

STANDARD INDUSTRIAL CLASSIFICATION (SIC) INDUSTRIES INCLUDED IN BANKING AND FINANCING SUBSECTORS

STANDARD INDUSTRIAL CLASSIFICATION			FINANCE AND BANKING SUBSECTORS						
GROUP NUMBER	INDUSTRY NUMBER	INDUSTRY	COMMERCIAL BANK	SAVINGS AND LOAN	CREDIT UNION	FINANCE COMPANY	SECURITY FIRM	MORTGAGE BANKING	OTHER
622	6221	COMMODITY BROKERS AND DEALERS					X		
623	6231	SECURITY AND COMMODITY EXCHANGES					X		
628	6281	SERVICES ALLIED WITH EXCHANGES					X		
671	6711	HOLDING COMPANIES							X
672	6722-6725	INVESTMENT COMPANIES							X
673	6732-6733	TRUSTS							X
679	6792-6799	MISCELLANEOUS INVESTING							X

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APPENDIX B: DEFINITIONS

APPENDIX B: DEFINITIONS

- **COMPUTER SERVICES**

  These are services provided by vendors which perform data processing functions using vendor computers, or assist users to perform such functions on their own computers.

- The following are definitions of the modes of service used in this report.

- **REMOTE COMPUTING SERVICES (RCS)**

  Provision of data processing to a user by means of terminals at the user's site/s connected by a data communications network to the vendor's central computer. The three sub-modes of RCS are:

  1. INTERACTIVE (timesharing) is characterized by interaction of the user with the system, primarily for problem solving timesharing, but also for data entry and transaction processing; the user is "on-line" to the program/files.

  2. REMOTE BATCH is where the user hands over control of a job to the vendor's computer which schedules job execution according to priorities and resource requirements.

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3. DATA BASE is characterized by the retrieval of information from a vendor-maintained data base. This may be owned by the vendor or a third party.

- **BATCH SERVICES**

This includes data processing performed at vendors' sites of user programs and/or data which are physically transported (as opposed to electronically by telecommunications media) to and/or from those sites. Data entry and data output services, such as keypunching and COM processing, are also included. Batch services include those expenditures by users which take their data to a vendor site which has a terminal connected to a remote computer used for the actual processing.

- **FACILITIES MANAGEMENT (FM)**

(Also referred to as "Resource Management" of "Systems Management.") The management of all or part of a user's data processing functions under a long-term contract (not less than one year). To qualify as FM, the contractor must directly plan and control as well as operate the facility provided to the user on-site, through communications lines, or mixed mode. Simply providing resources, even though under a long-term contract and/or for all of a users' processing needs, does not necessarily qualify as FM.

- **PROFESSIONAL SERVICES**

Management consulting related to EDP, systems consulting, systems design and programming, and other professional services are included in this category. Services can be provided on a basis of: "Time and Materials," whereby the user pays for the time used of an individual on a daily or other fixed rate, or "Fixed Price," where the user pays a fixed fee for a specific task or series of tasks.

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• SOFTWARE PRODUCTS

This category is for users' purchases of systems and applications packages for use on in-house computer systems. The figures quoted include lease and purchase expenditures, as well as fees for work performed by the vendor to implement and maintain the package at the users' sites. Fees for work performed by organizations other than the package vendor are counted in professional services. The two sub-categories are:

1. SYSTEMS PACKAGES are operating systems, utilities, and language routines that enable the computer/communications system to perform basic functions. This software is provided by the mainframe manufacturers with their hardware; other vendors provide improved versions of this and special-purpose routines. This classification includes compilers, data base management software, communications packages, simulators, performance measurement software, diagnostic software, and sorts.

2. APPLICATIONS PACKAGES are software which perform processing to serve user functions. They consist of general purpose packages, such as for accounting and inventory control, and special purpose packages, such as personal trust, airline scheduling, and demand deposit accounting.

• PROCESSING SERVICES

Processing services encompass FM, RCS, and batch services: they are categorized by type of service, as distinguished from mode of service, bought by users as follows:

- GENERAL BUSINESS services are processing services for applications which are common to users across industry categories. Software is provided by the vendor; this can be a complete package, such as a payroll package, or an application "tool," such as a budgeting model,

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where a user provides much of the customizing of the finished product it uses. General business processing is often repetitive and transaction oriented.

- SCIENTIFIC AND ENGINEERING services are the processing of scientific and engineering problems for users across industries. The problems usually involve the solution of mathematical equations. Processing is generally problem solving and is non-repetitive, except in the sense that the same packages or "tools" are used to address different, but similar, problems.

- INDUSTRY SPECIALTY services provide processing for particular functions or problems unique to an industry or industry group. The software is provided by the vendor either as a complete package or as an application "tool" which the user employs to produce its unique solution. Specialty applications can be either business or scientific in orientation; data base services where the vendor supplies the data base and controls access to it (although it may be owned by a third party) are also included under this category. Examples of industry specialty applications are: seismic data processing, numerically-controlled machine tool software development, and demand deposit accounting.

- UTILITY services are those where the vendor provides access to a computer and/or communications network with basic software that enables any user to develop its own problem solution or processing system. These basic tools include terminal handling software, sorts, language compilers, data base management systems, information retrieval software, scientific library routines, and other systems software.

- **ACCOUNT PRICING** is a method favored by most users because it enables them to effectively budget for computer services costs on a periodic (quarterly to annual) basis. The user is willing to increase costs for the certainty, thus his actual cost will not suddenly exceed his budget. The

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computer services vendor assumes the risk of increased transaction values over the contracted time period. The computer services venodr can protect his profit margins to a degree by placing limits on aggregate transaction volumes under an account pricing structure.

- **AUTOMATED CLEARING HOUSE (ACH)** An automated clearing house exchanges payments between members via computer media such as magnetic tape. The ACH is formed by an association of private depository institutions. Most of the current ACHs are located on the premises of Federal Reserve Banks. The ACHs in Chicago and New York are privately operated.

- **AUTOMATIC TELLER MACHINES (ATM)** allow consumers to initiate simple deposits or cash withdrawals from their bank checking or S&L savings accounts.

- **CHECK TRUNCATION** is the process whereby the movement of a paper check is stopped at the depository institution first receiving the check. Pertinent information is converted to electronic image, processed by the payments clearance systems, and the customer receives either a descriptive account statement or facsimile check copies.

- **DISTRIBUTED DATA PROCESSING (DDP)**

  - INPUT was unable to find a consensus among both users and vendors as to a definition of DDP. It appears to be a concept that is uniquely structured to satisfy individual vendor and user requirements.

  - Nonetheless, as a result of extensive work in this area, INPUT offers the following hybrid definition:

    "Distributed processing is the deployment of programmable intelligence in order to perform data processing functions where they can be accomplished most effectively, through the electronic interconnection of computers and terminals, arranged in a telecommunications network adapted to the user's characteristics."

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- **ELECTRONIC FUNDS TRANSFER SYSTEMS (EFTS)** Electronic Funds Transfer Systems use consumer-operated terminals, telecommunications and computers to accomplish funds transfers between consumers and retailers or depository institutions in lieu of cash or paper check.

- **AN END USER** may buy a system from the hardware supplier(s) and do his own programming, interfacing and installation. Alternately, he may buy a turnkey system from a manufacturer, systems house or hardware integrator.

- **FINANCIAL INQUIRY SERVICES (FIS)** provide on-line access to a wide range of security, commodity, bond, money instrument, and option price data bases directly related to activity on national exchanges. The services include the data base, remote computers, the communication network, communication controllers, and the inquiry terminals.

- **FINANCIAL MANAGEMENT AND PLANNING SYSTEMS (FMPS)** are software packages that are used to model all or part of a company's financial planning activities. FMPS software is used to create end user solutions to financial planning problems, either directly or through the generation of end user computer programs that in turn are executed to forecast the desired financial or planning data.

- **A MINICOMPUTER** is usually a 12 to 16 bit computer which is provided with limited applications software and support and represents a portion of a complete larger system.

- **NEGOTIABLE ORDER OF WITHDRAWAL (NOW) ACCOUNT** A NOW Account is a special savings account. NOW Accounts pay the regular savings passbook rate of interest. The consumer writes a NOW draft (similar to a check) which, when countersigned by the depository institution, allows for third-party payment.

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- **SHARE DRAFT ACCOUNTS** are special share accounts at a credit unions, whereby the credit union member writes a share draft, which when countersigned by the credit union manager, allows for third party payment.

- **SOFTWARE PRODUCTS** are systems and applications packages that are sold to computer users by equipment manufacturers, independent vendors, and others. They include fees for work performed by the vendor to implement a package at the user's site.

- **A SYSTEMS HOUSE** integrates hardware and software into a total turnkey system to satisfy the data processing requirements of the end user. It may also develop system software products for license to end users.

- **A TURNKEY SYSTEM** is composed of hardware and software integrated into a total system designed to fulfill completely the processing requirements of a single application, usually on a standalone basis.

- **USER SITE HARDWARE SERVICES (USHS)**

  - These are offerings, typically from RCS vendors, which place programmable hardware on the user site (as compared to the EDP center).

  - Offer access to communications network.

  - Offer access through the network to the RCS vendor's larger computers.

  - Offers significant software as part of the offering.

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APPENDIX C: RELATED INPUT REPORTS

APPENDIX C

RELATED INPUT REPORTS

TITLE	INDUSTRY REPORT NUMBER	PUBLICATION DATE
RCS MARKETS FOR ECONOMIC AND FINANICAL DATA BASES	5	JANUARY 1977
COMPUTER SERVICES MARKETS IN THE SAVINGS AND LOAN INDUSTRY	8	JULY 1977
COMPUTER SERVICES MARKETS IN CORRESPONDENT BANKING	13	MARCH 1978
COMPUTER SERVICES INDUSTRY 1978 ANNUAL REPORT	-	NOVEMBER 1978
FINANCIAL MANAGEMENT AND PLANNING SERVICES AND SOFTWARE MARKETS	18	FEBRUARY 1979
(CONTACT MR. MICHAEL P. BURWEN, VICE PRESIDENT MARKETING (415-493-1600)		

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APPENDIX D: SURVEY QUESTIONNAIRES

CATALOG NO. MBAF☐☐

USER QUESTIONNAIRE
COMPUTER SERVICES AND SOFTWARE MARKETS
IN FINANCE AND BANKING

1. Do you use computer automation for any of your company's operations?

   ☐ Yes ☐ No

   If yes, go to Question 3.

   If No, go to Question 2.

2. Do you intend/plan to automate your operations within the next 2 years?

   ☐ Yes Go to Question 16

   ☐ No Thank you - END OF INTERVIEW.

3. How do you do your processing now?

   ☐ In House _____%

   ☐ Computer Services _____%

4. What are the five (5) most important applications you currently have automated? (in order of importance)

Order of Importance	Application	In House	Uses Purchased Software Products	Uses Outside Processing Services
1.	_____	☐	☐	☐
2.	_____	☐	☐	☐
3.	_____	☐	☐	☐
4.	_____	☐	☐	☐
5.	_____	☐	☐	☐

5. How much did you spend on EDP in 1978? How much do you estimate you will spend in 1979? ☐ Don't Know

	1978	1979
In House	$ ____ ☐Mo. ☐Yr.	$ ____ ☐Mo. ☐Yr.
Outside Services	$ ____ ☐Mo. ☐Yr.	$ ____ ☐Mo. ☐Yr.

6. a) What growth do you expect over the next 5 years (1980 - 1984)?

☐ Don't Know

In-House _____%/yr.

(or split)

Outside Services _____%/Yr.

b) What are the three (3) most important reasons for this growth?

1. _____

_____

2. _____

_____

3. _____

_____

7. Please estimate the portion of your outside processing services that is accomplished in the following modes in 1979, 1980 and 1984:

☐ Don't Know

MODE	% 1979	% 1980	% 1984
Interactive			
Remote Batch			
Batch			
	100%	100%	100%

8. Who are the computer services vendors you currently use?

	Service Type		
	Computer Services	Software Products	Professional Services
1. _____	☐	☐	☐
2. _____	☐	☐	☐
3. _____	☐	☐	☐
4. _____	☐	☐	☐
5. _____	☐	☐	☐

9. What is your level of satisfaction with your current products/services?

☐ Services ☐ Not Applicable

- ☐ Fulfill all requirements
- ☐ Lack meeting significant requirements
- ☐ Meet most requirements
- ☐ Have serious difficulties
- ☐ Other _____ (Specify)

Comments: _____

_____

_____

_____

☐ Software Products ☐ Not Applicable

- ☐ Fulfill all requirements
- ☐ Lack meeting significant requirements
- ☐ Meet most requirements
- ☐ Have serious difficulties
- ☐ Other _____ (Specify)

Comments: _____

_____

_____

_____

10. What changes if any do you expect to be making in the way of outside computer services/products in the next 2-3 years?

☐ None

Comments: _____

_____

_____

_____

_____

11. What are the other applications you would like to see accomplished by either computer services or software product vendors in the next 2-3 years (In order of importance)?

☐ None

Order of Importance	Application	Service Type: Processing Services	Service Type: Software Products
1.	_____	☐	☐
2.	_____	☐	☐
3.	_____	☐	☐
4.	_____	☐	☐

12. Are there any factors which would significantly increase your use of outside computer services or software products in the next 3-5 years?

☐ None

☐ Government ☐ Mini Computers

☐ EFTS ☐ Market Changes

☐ On-line Systems

Comments: _____

_____

_____

_____

_____

13. What is your attitute/plan with regard to distributed processing?

- ☐ Have not considered DDP
- ☐ Are considering DDP
- ☐ Have Implemented DDP
- ☐ Will be implementing DDP in the future

Comments: _____

_____

_____

_____

_____

14. What is your attitude/plan with respect to Facilities Management?

- ☐ Have not considered FM
- ☐ Are considering FM
- ☐ Have Implemented FM
- ☐ Have rejected FM

Comments: _____

_____

_____

_____

_____

15. What is your attitude/plan for on-site mini-computers?

- ☐ Have not considered on-site
- ☐ Are considering on-site
- ☐ Have implemented on-site
- ☐ Have rejected on-site

Comments: _____

_____

_____

_____

END OF INTERVIEW

16. What applications/services are you/will you be considering?

☐ In-house ☐ RCS Vendor

Application	Vendor	Type of Service: Software Products	Computer Services	Mini Computer
1. _____	_____	☐	☐	☐
2. _____	_____	☐	☐	☐
3. _____	_____	☐	☐	☐
4. _____	_____	☐	☐	☐
5. _____	_____	☐	☐	☐

Comments: _____

_____

_____

_____

_____

17. What are your planned/estimated EDP expenditures?

	1979		1980		Growth
In-House	$ _____	Mo.☐Yr.☐	$ _____	Mo.☐Yr.☐	_____%
Outside Services	$ _____	Mo.☐Yr.☐	$ _____	Mo.☐Yr.☐	_____%

18. What is your attitude/plan with regard to distributed processing?

☐ Have not considered DDP
☐ Are considering DDP
☐ Have Implemented DDP
☐ Will be implementing DDP in the future

Comments: _____

_____

_____

_____

_____

19. What is your attitude/plan with respect to Facilities Management?

- ☐ Have not considered FM
- ☐ Are considering FM
- ☐ Have implemented FM
- ☐ Have rejected FM

Comments: _____

_____

_____

_____

_____

20. What is your attitude/plan for on-site mini-computers?

- ☐ Have not considered on-site
- ☐ Are considering on-site
- ☐ Have implemented on-site
- ☐ Have rejected on-site

Comments: _____

_____

_____

_____

_____

END OF INTERVIEW

VENDOR QUESTIONNAIRE

COMPUTER SERVICES AND SOFTWARE MARKETS IN FINANCE AND BANKING

1. Do you offer computer services/software products to the following organizations:

	Computer Services	Software Products
Commercial Banks		
Commercial Banking	☐	☐
Trust Services	☐	☐
Automated Customer Services (Payroll, etc.)	☐	☐
Corporate Services	☐	☐
Financial Management and Planning	☐	☐
Credit Card Processing	☐	☐
Other (name) _____	☐	☐
Savings & Loans		
Savings & Loan Processing	☐	☐
Financial Management and Planning	☐	☐
Other (name) _____	☐	☐
Credit Unions		
Account Processing	☐	☐
Share Draft Accounting	☐	☐
Other (name) _____	☐	☐
Credit Agencies		
Personal	☐	☐
Commercial	☐	☐
General Accounting	☐	☐
Financial Management and Planning	☐	☐
Other (name) _____	☐	☐
_____	☐	☐

1. (Continued)

	Computer Services	Software Products
Security and Commodity Brokers		
General Accounting	☐	☐
Stock Quotation	☐	☐
Financial Management and Planning	☐	☐
Other (name) _____	☐	☐
Holding and Investment Companies		
General Accounting	☐	☐
Financial Management and Planning	☐	☐
Economic Forecasting	☐	☐
Other (name) _____	☐	☐

2. What is your best estimate of the size and your share of your market segments (i.e., commercial banks, S & L's, etc.)?

Market Segment Name	Market Size		Market Share (Revenues)	
	Services	Software Products	Computer Services	Software Products
	Companies ($M)	Companies ($M)	(%)	(%)
1.				
2.				
3.				
4.				

3. What growth in market share do you expect by:

	1979 (%)	1984 (%)
Commercial Banks	____	____
Savings and Loans	____	____
Credit Unions	____	____
Security and Commodity Brokers	____	____
Credit Agencies	____	____
Mortgage Bankers	____	____
Holding and Investment Companies	____	____

4. Please describe your major product offerings. (List up to 5)

Market Segment	Offering Name	Description	DELIVERY MODE (check those that apply) RCS	Batch	FM	MINI	Software Package
1.							
2.							
3.							
4.							
5.							

5. Within each market segment, who are your competitors?

Market Segment	Competitor Name	Relative Share (%)
1.	1. 2. 3.	
2.	1. 2. 3.	
3.	1. 2. 3.	
4.	1. 2. 3.	

6. What are the major factors you see impacting the market for computer services over the next 3-5 years?

Market Segment	Factors
1.	
2.	
3.	